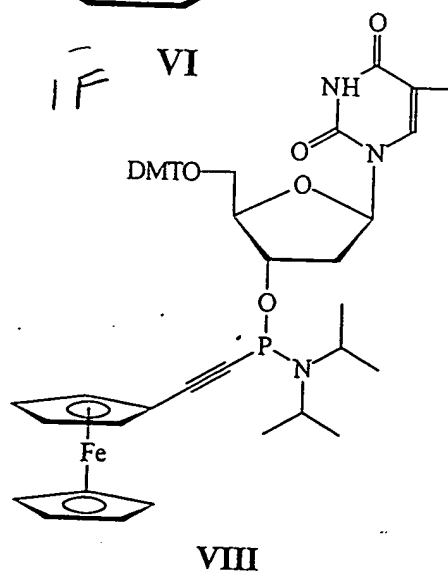
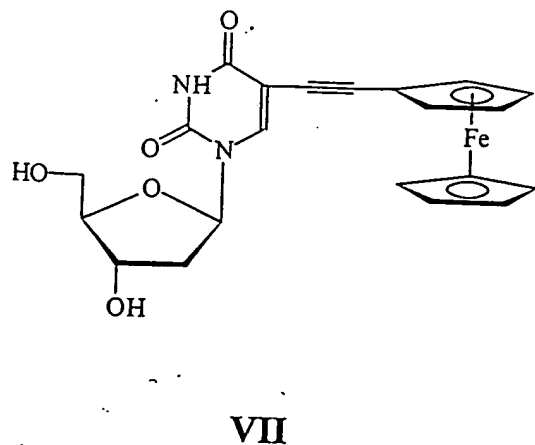
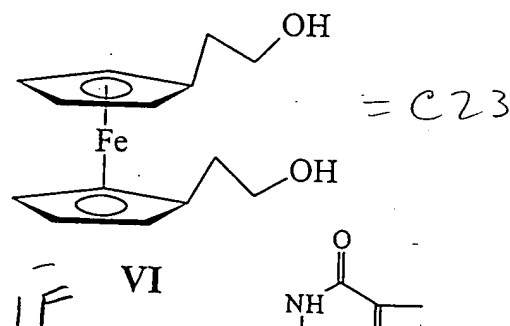
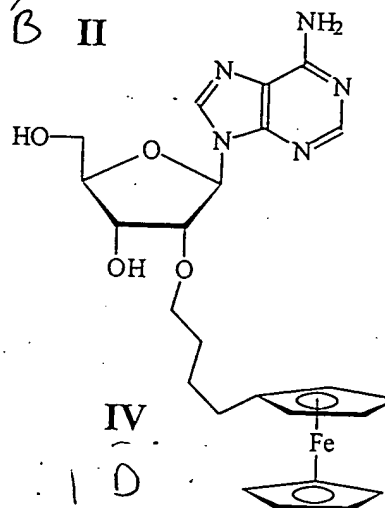
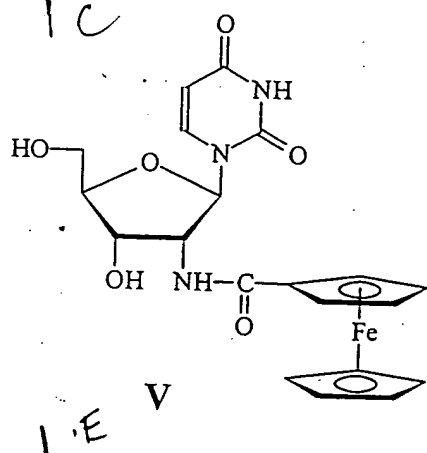
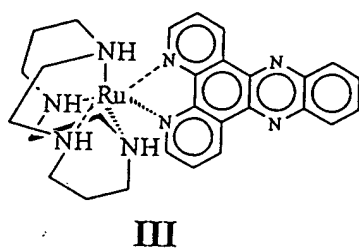
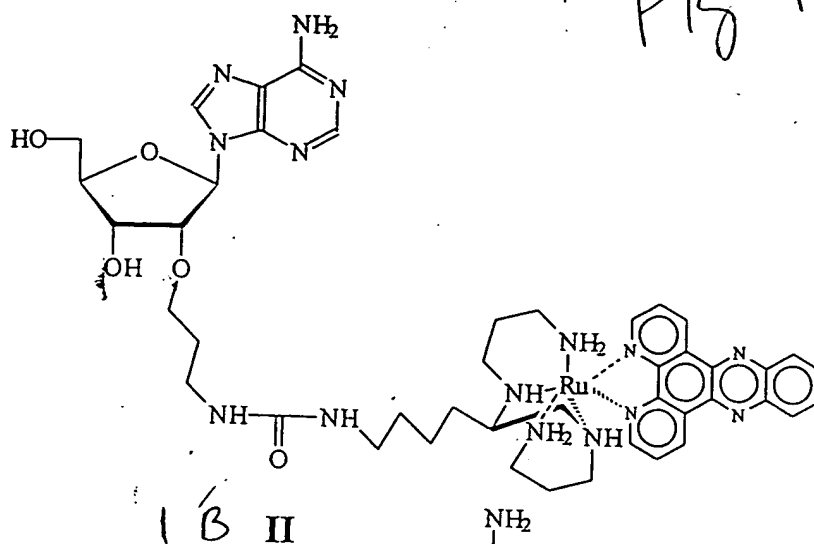
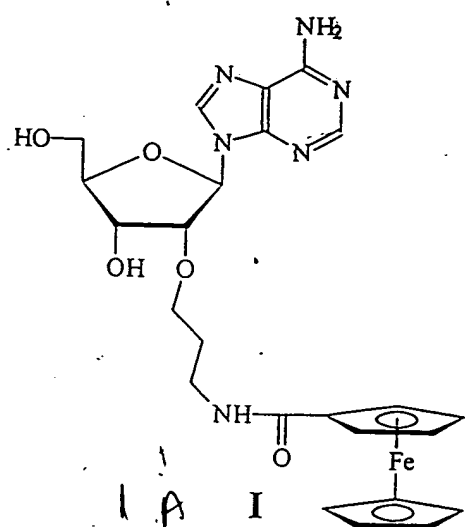


List of Metal Complexes for Comparison

Fig 1

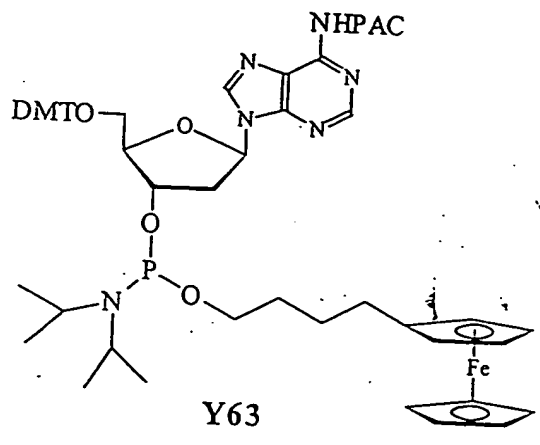


1 G

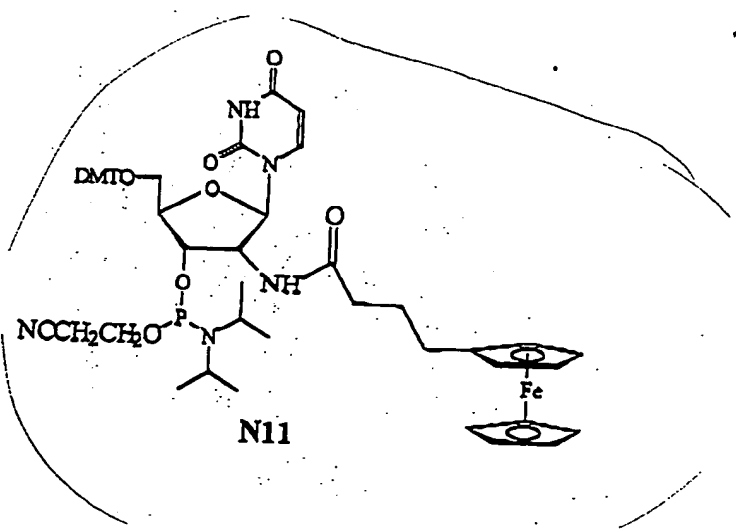
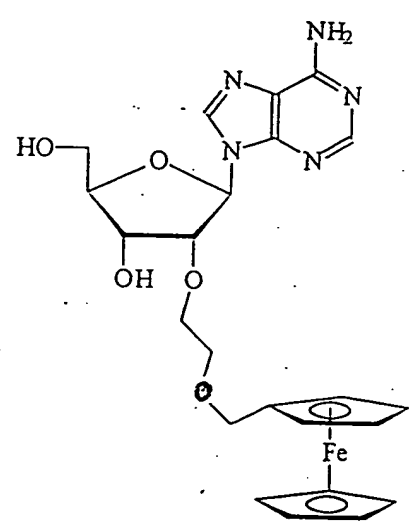
1 H

2/18/98

Fig 1
(cont.)



1.I



00135403-004700

Synthesis Scheme of Adenosine Ferrocene

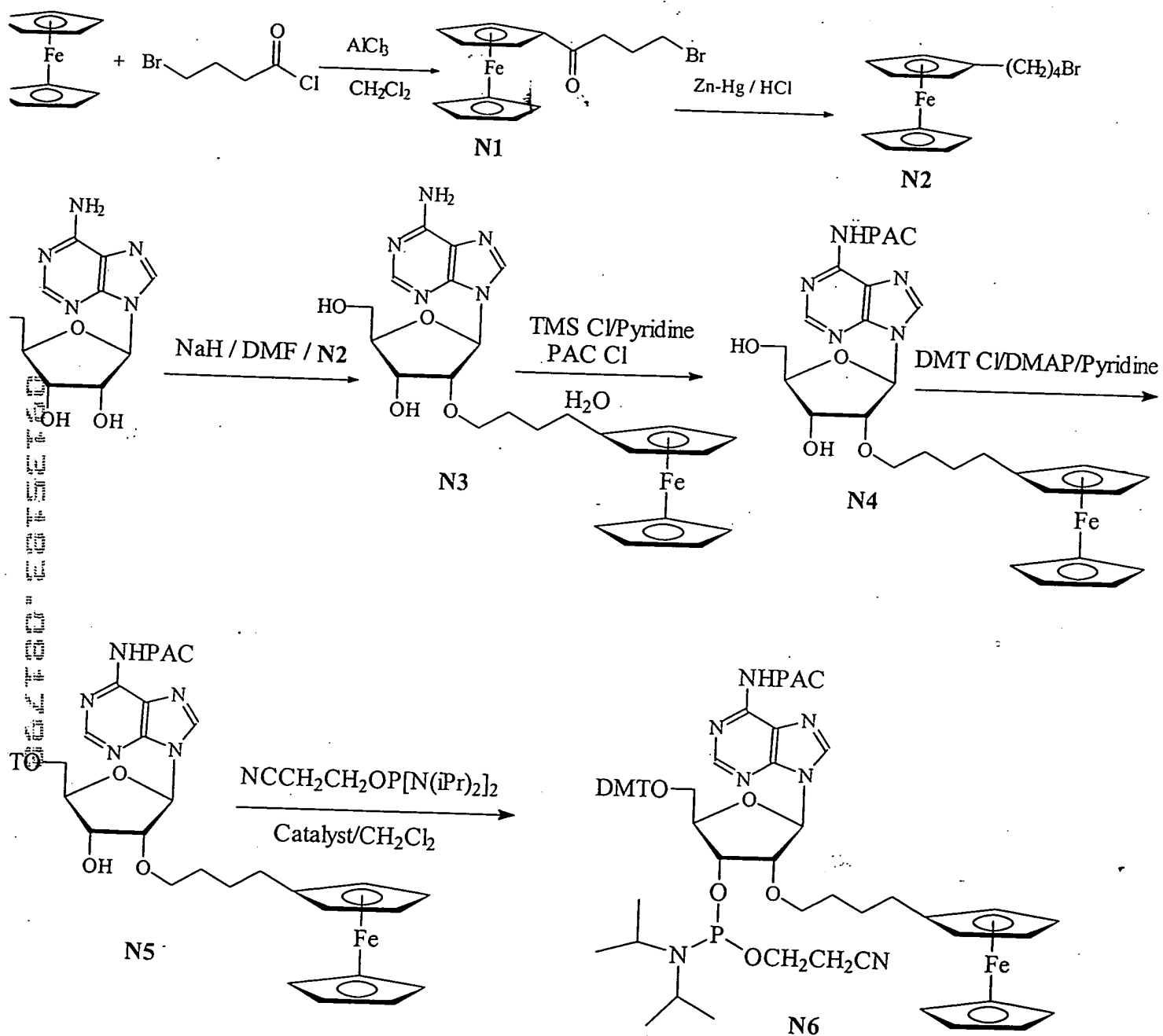


FIG.
2

Synthesis Scheme of Cytidine Ferrocene

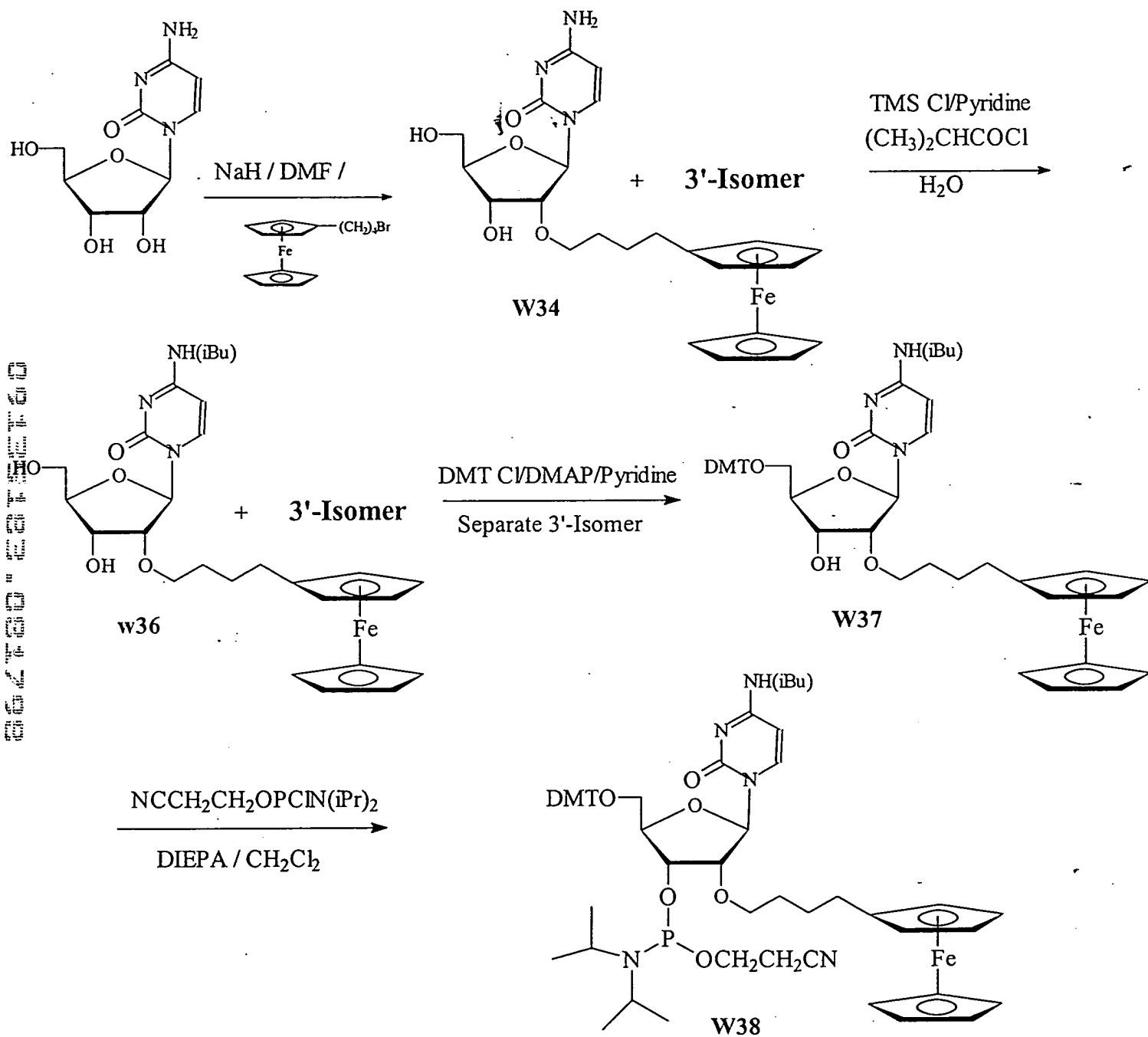


FIG.
3

Synthesis Scheme of Y63

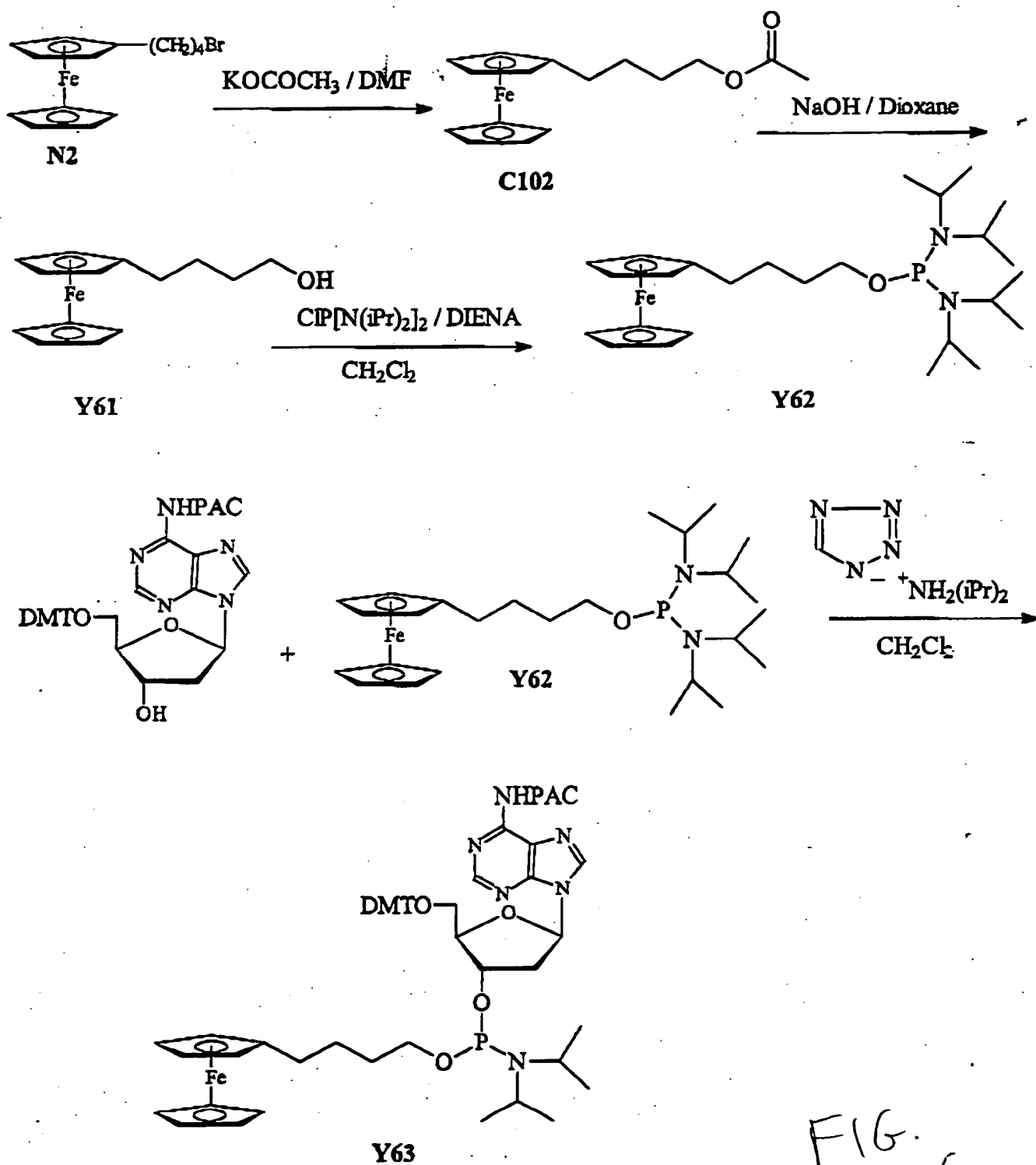


FIG. 4

Synthesis of Adenosine Ferrocene Triphosphate

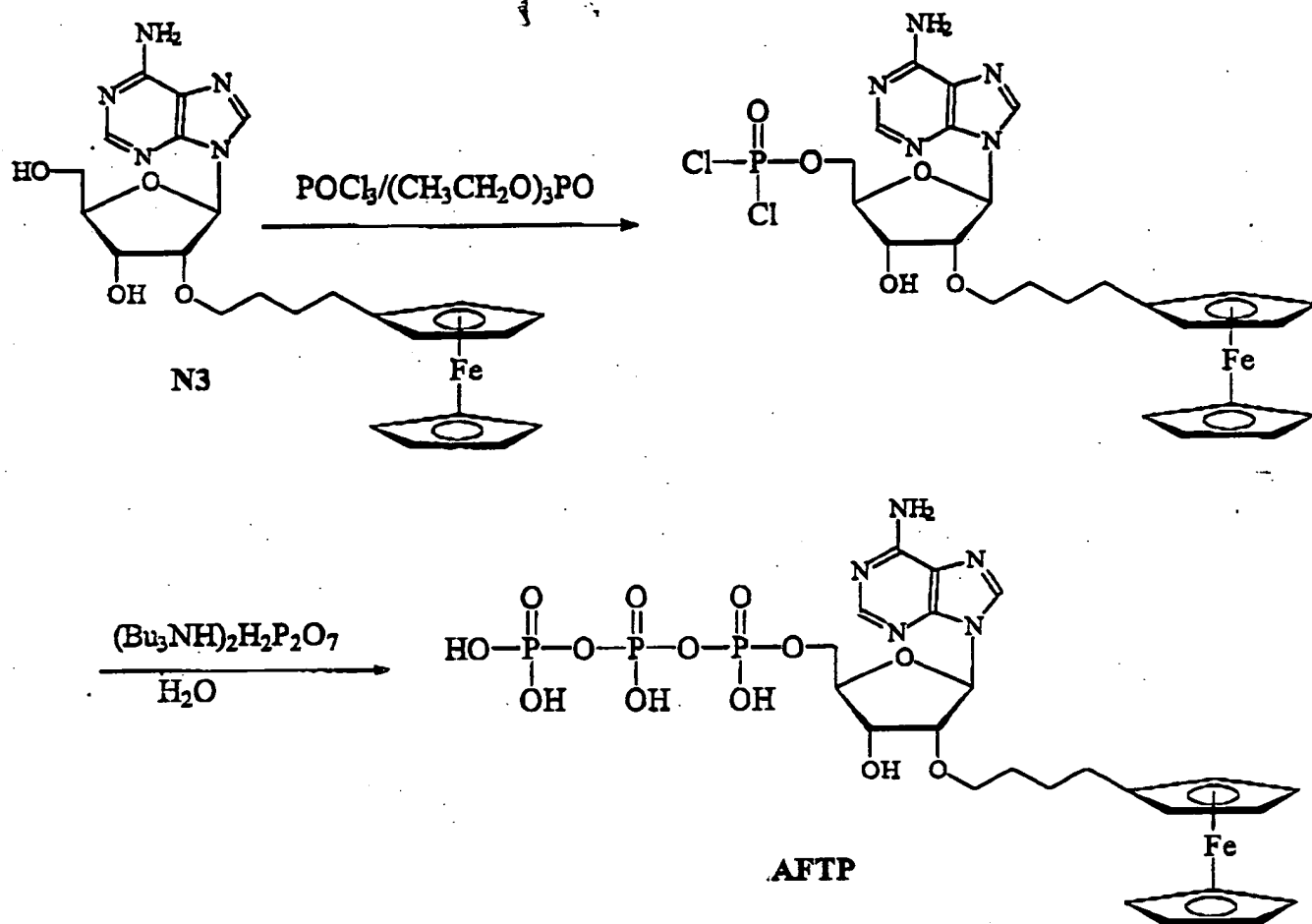


FIG. 5

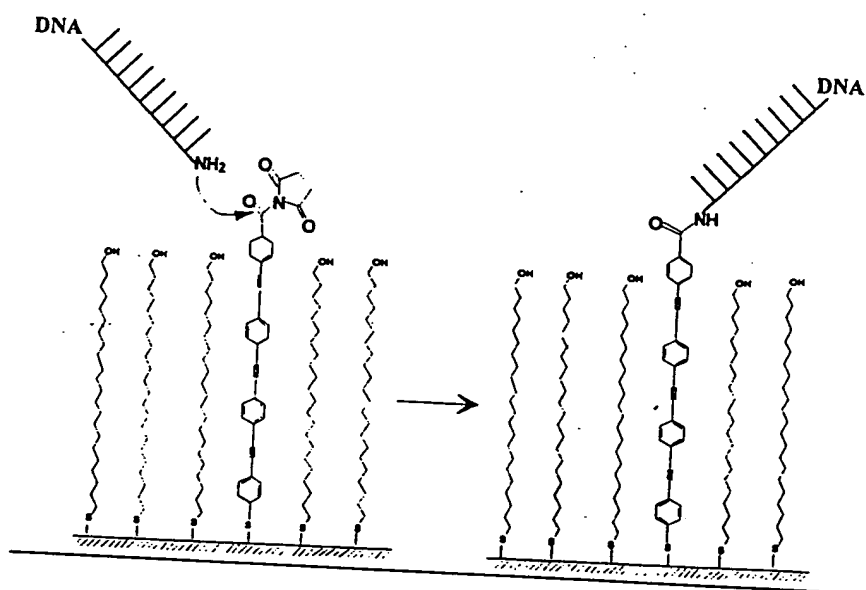


FIG.
6

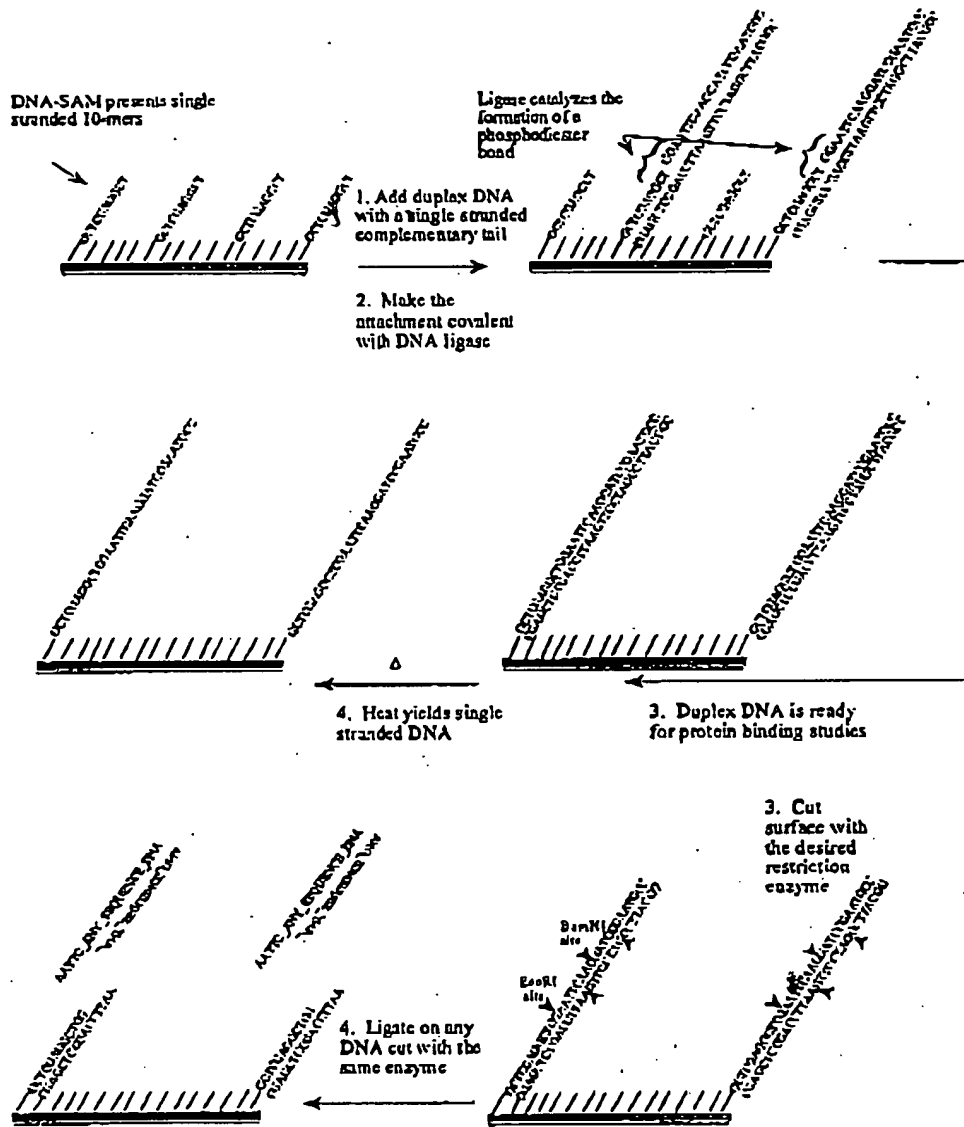
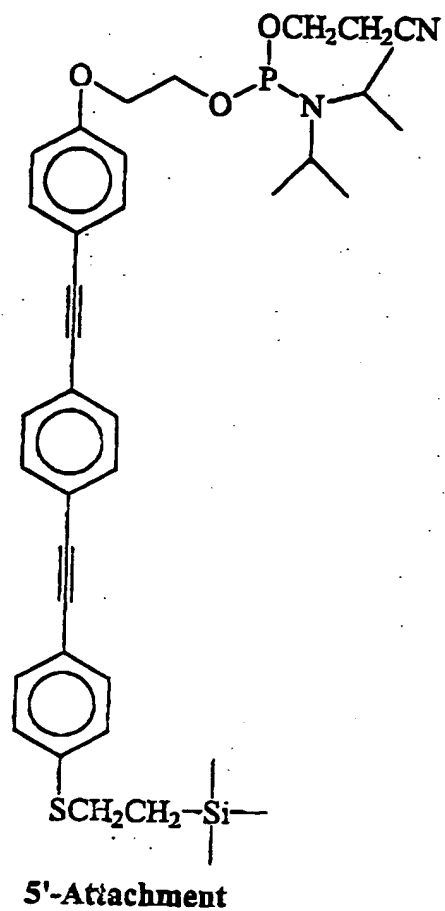
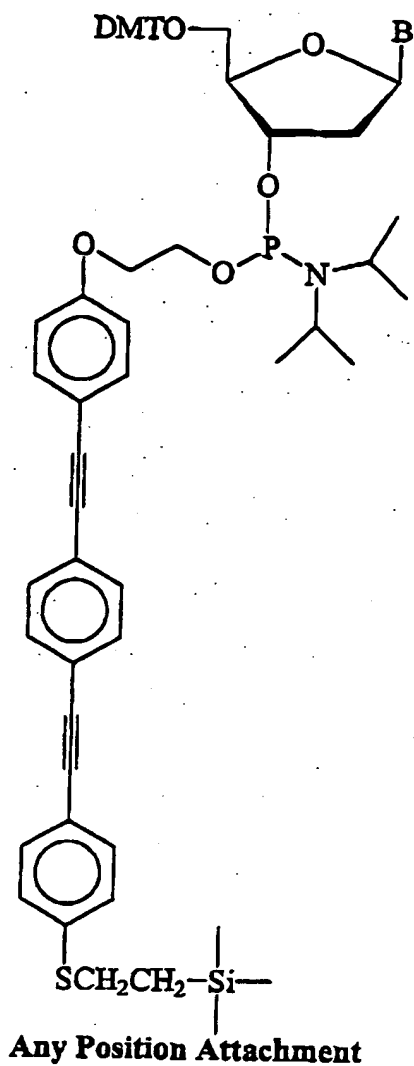


FIG. 7



8A



8B

FIG.
8

Synthesis Scheme of C109

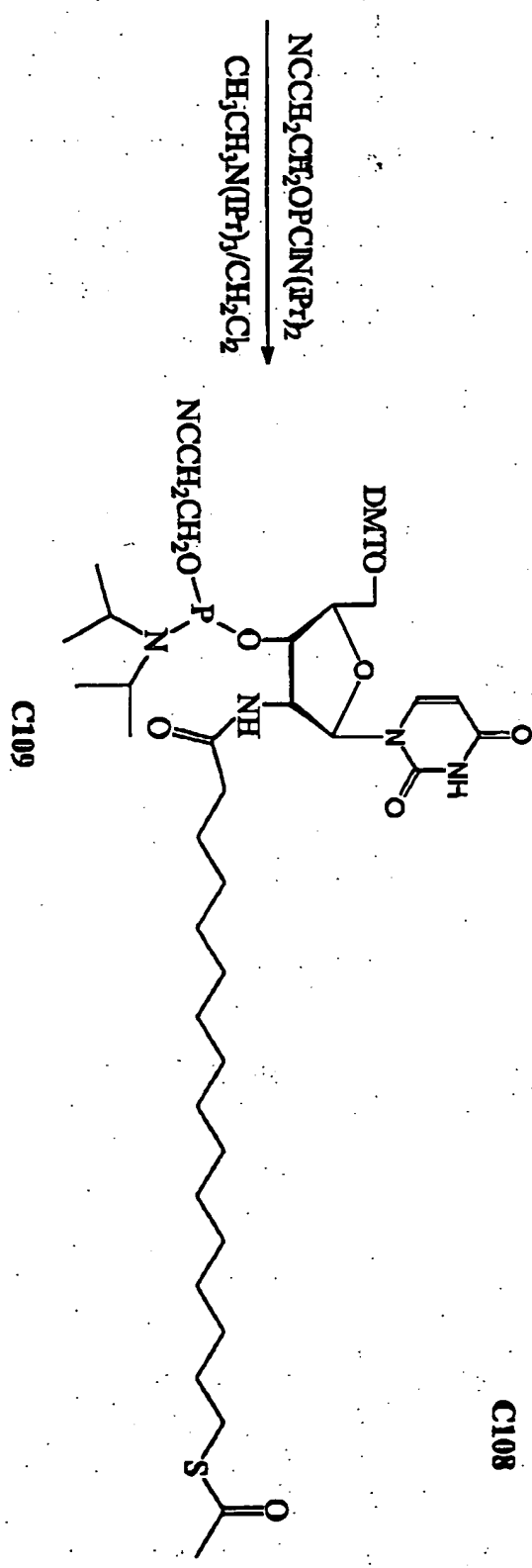
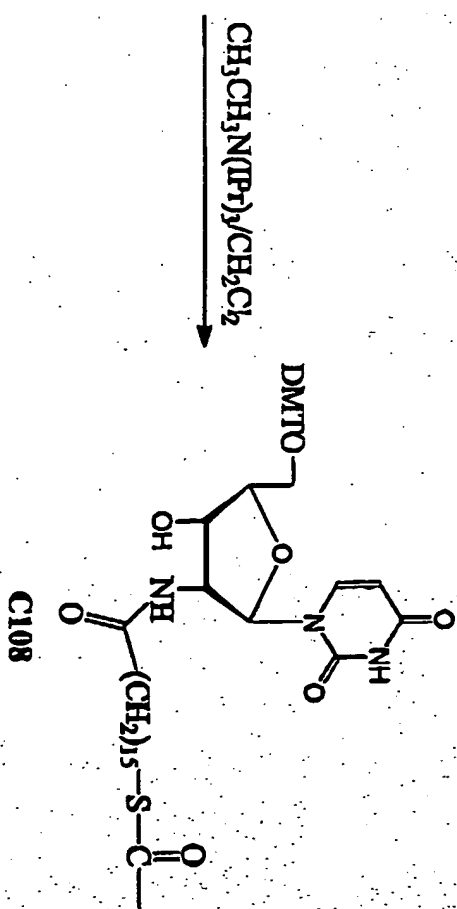
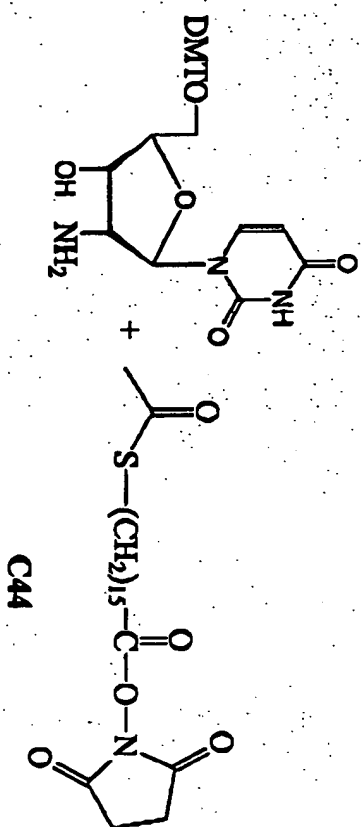


Fig. 1

Synthesis Scheme of Ethylene Glycol Terminated Wires

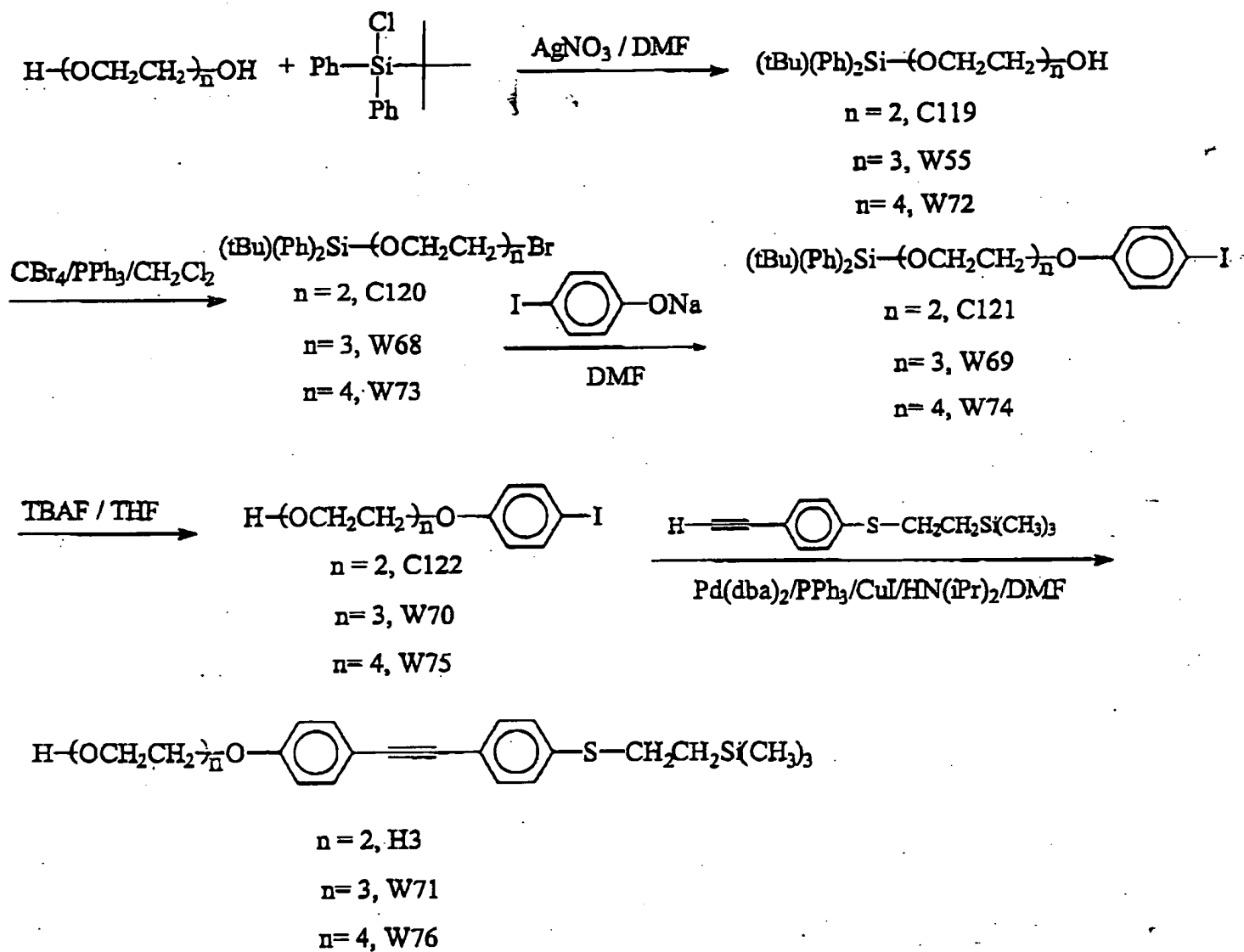


FIG.

10

Synthesis Scheme of Branched Adenosine

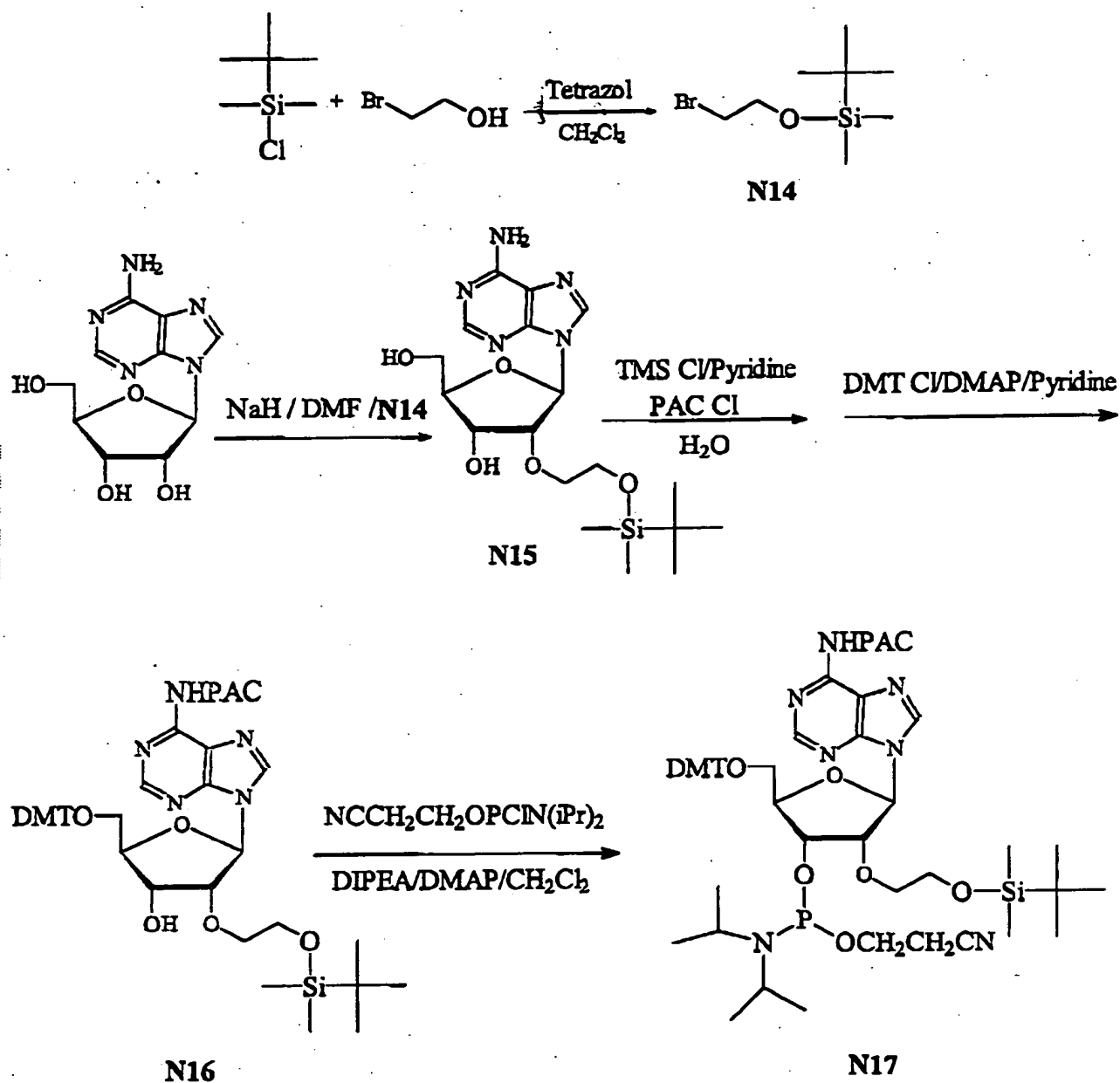


FIG.
11A

Synthesis Scheme of W90

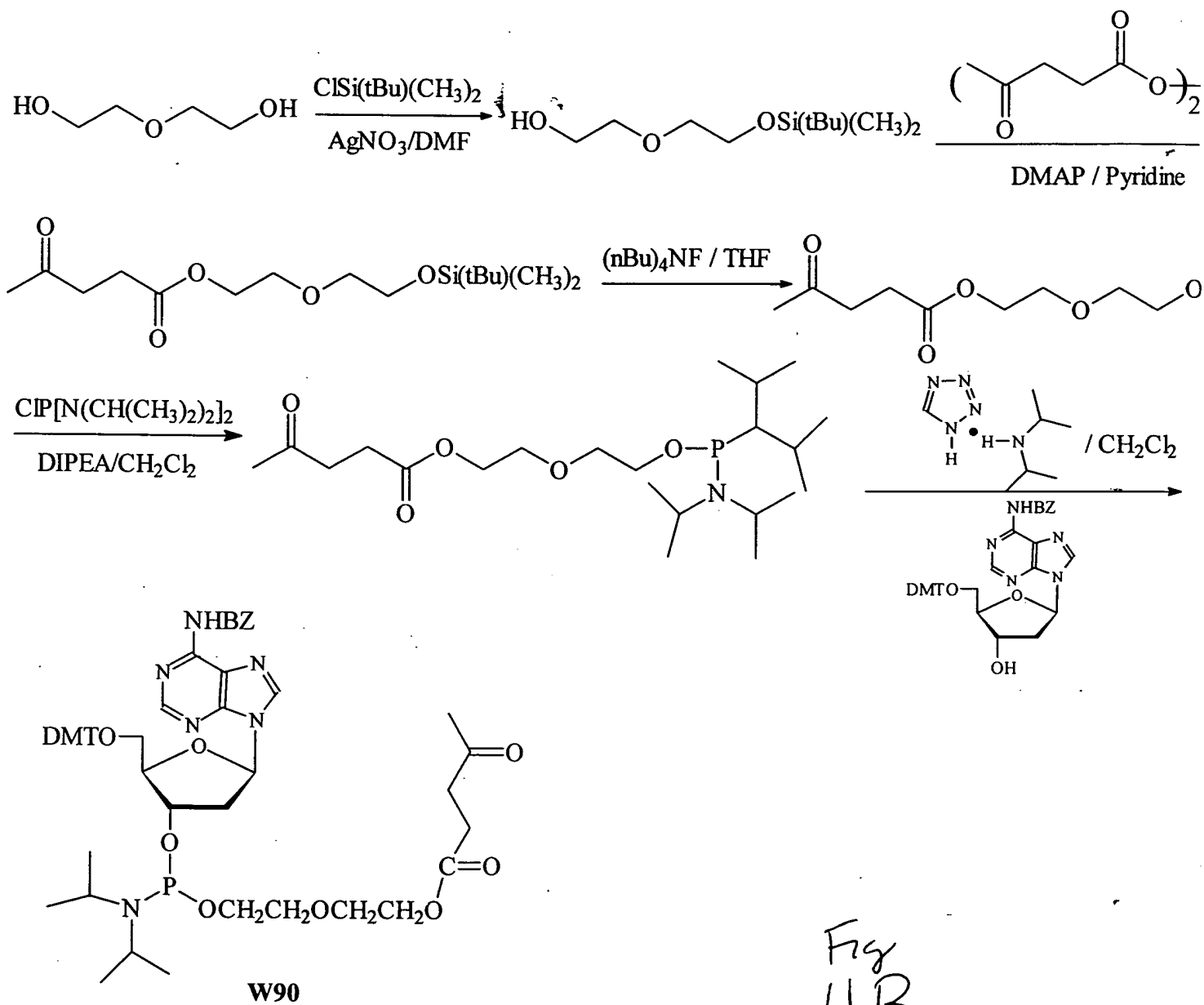


Fig
11B

Synthesis Scheme of N38

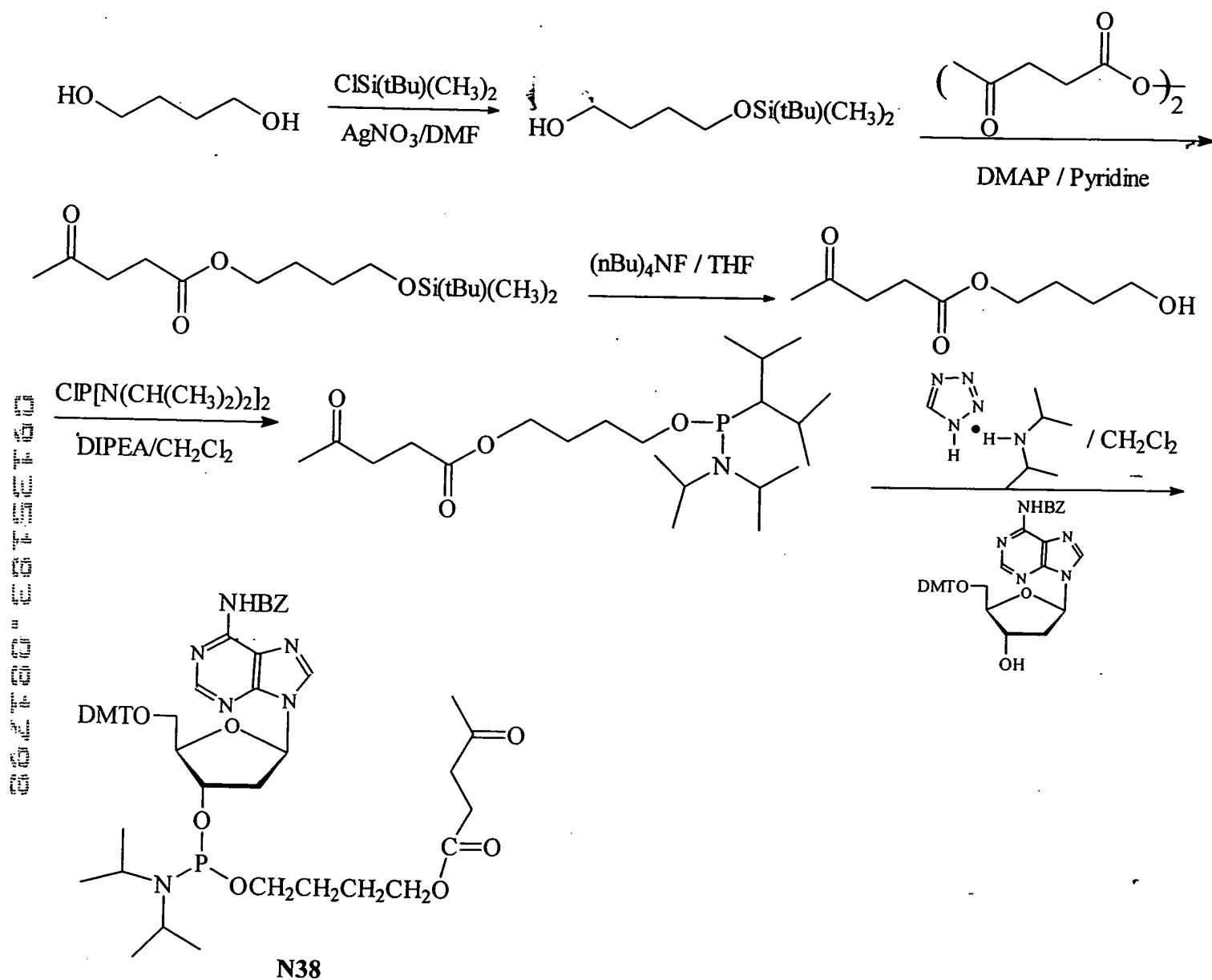
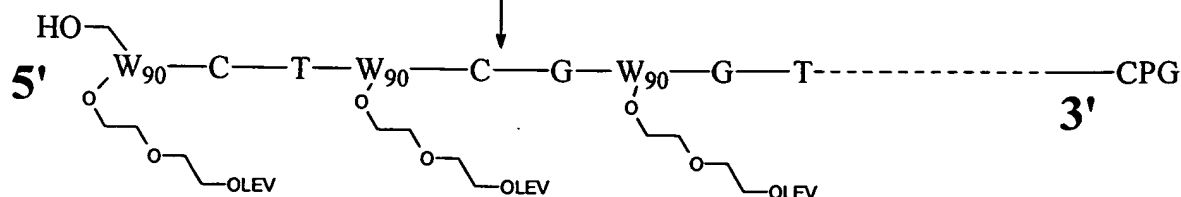


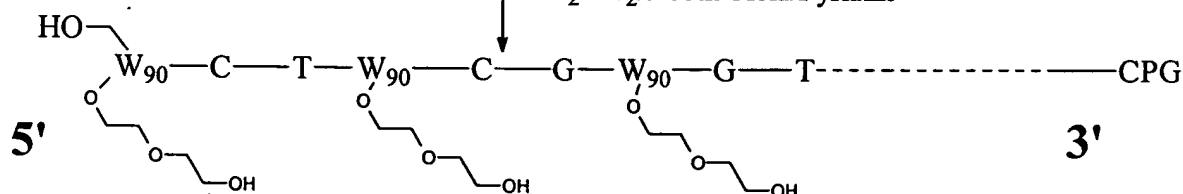
Fig
11C

Procedure of Incorporating Multiple Metal Complex into DNA

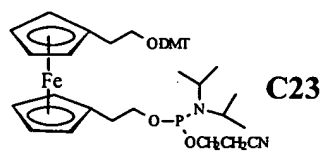
Standard DNA Synthesis Using W90



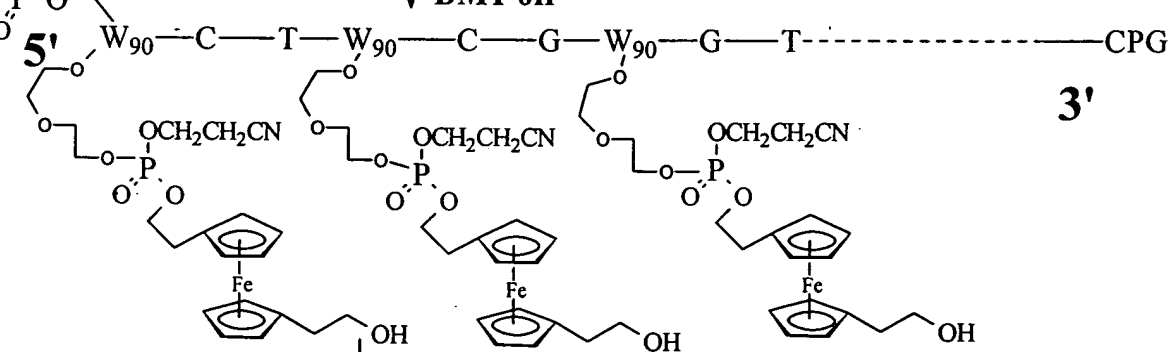
NH₂NH₂/Acetic Acid/Pyridine



Coupling to



DMT off



This process can be repeated until the desired # of Ferrocene is obtained, and then hydroxy groups on ferrocene are capped using the left phosphoramidite in order to increase the solubility of Ferrocene in water

DMTO-CH₂CH₂-S(=O)₂-CH₂CH₂-O-P(=O)(N(CH₃)₂)-OCH₂CH₂CN
H2
DMT off / Cleavage and Deprotection

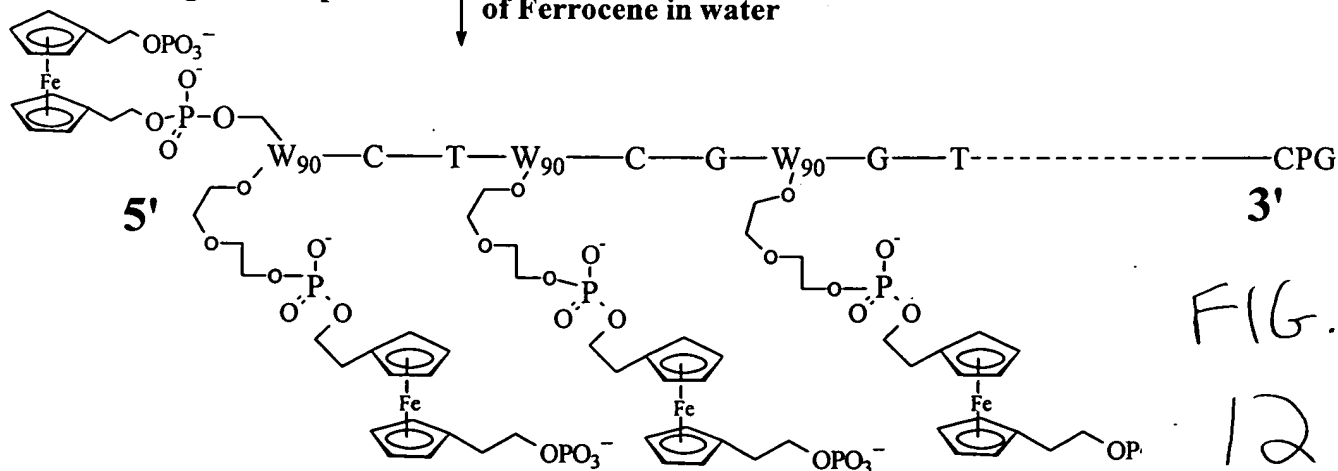
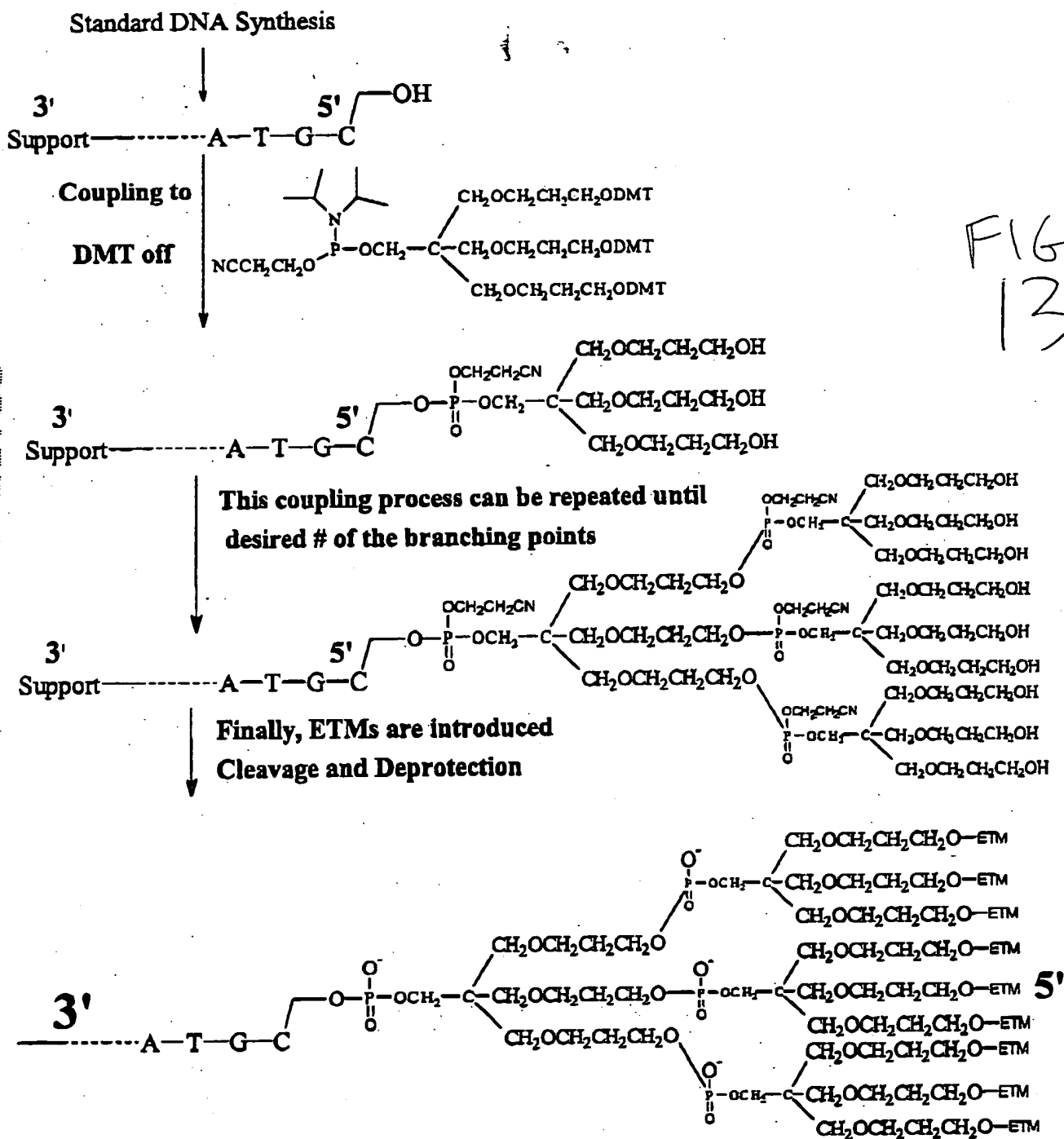


FIG.

12

Scheme for Incorporating Multiple ETMs Using Branching Phosphoramidite

662730-1-1000



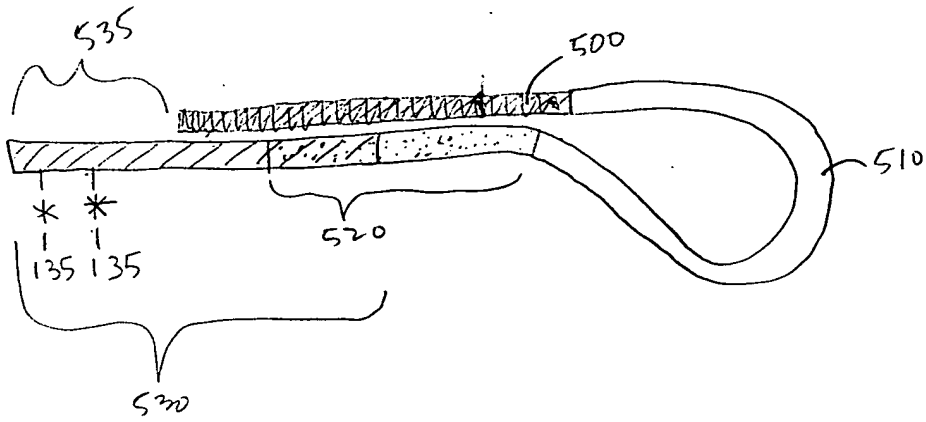
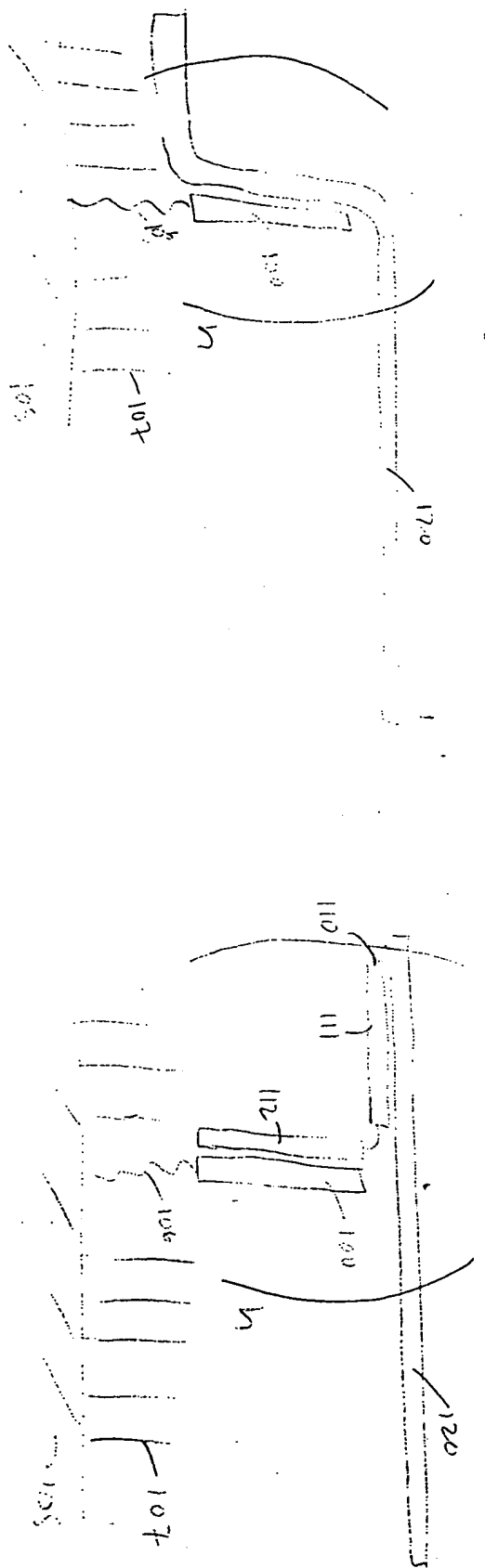
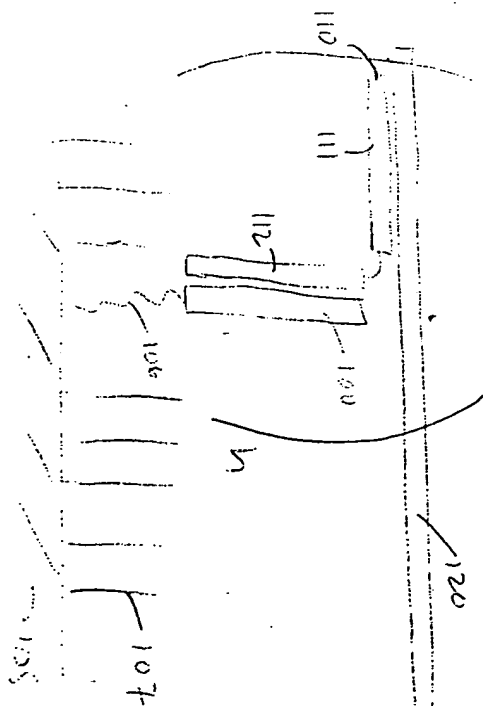


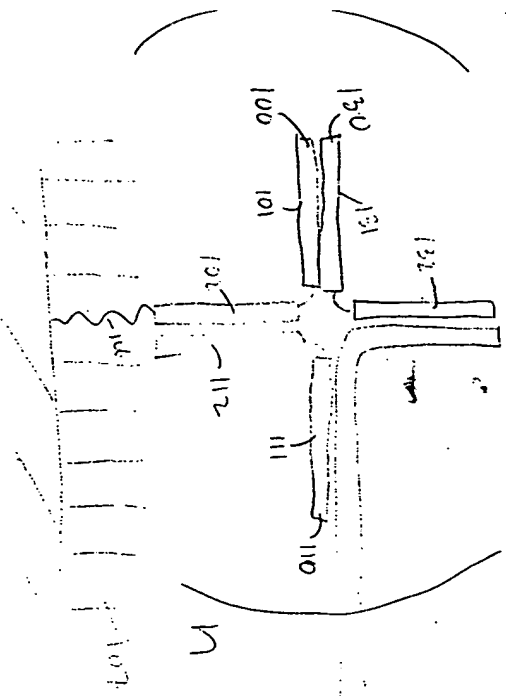
FIG. 14



A

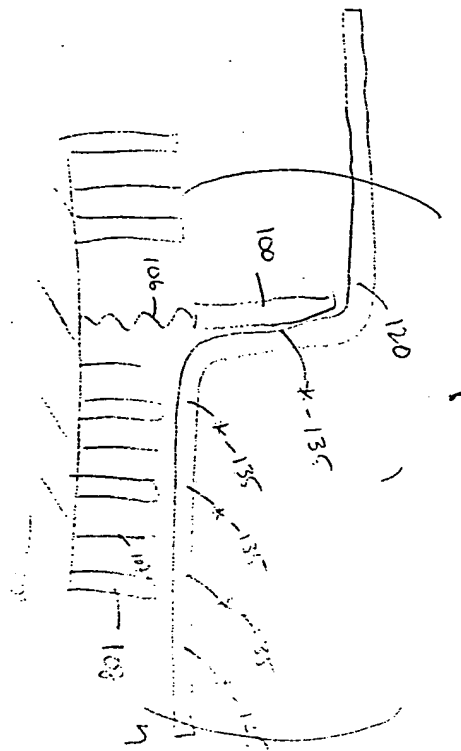


B

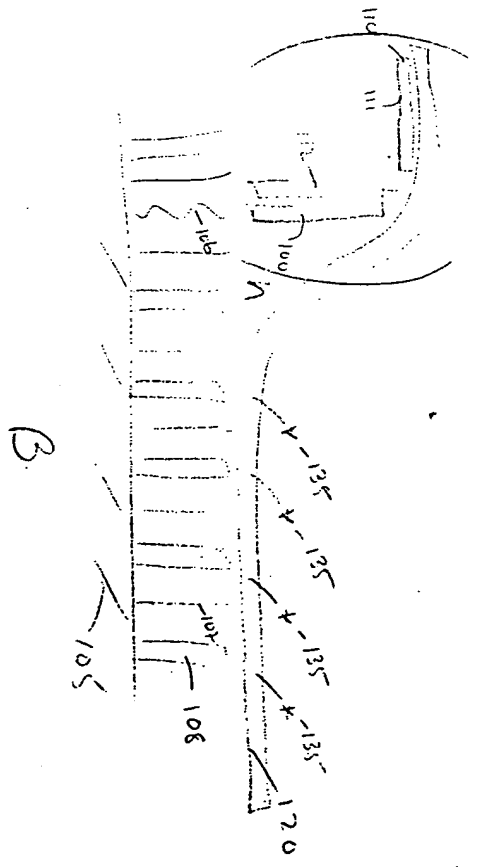


C

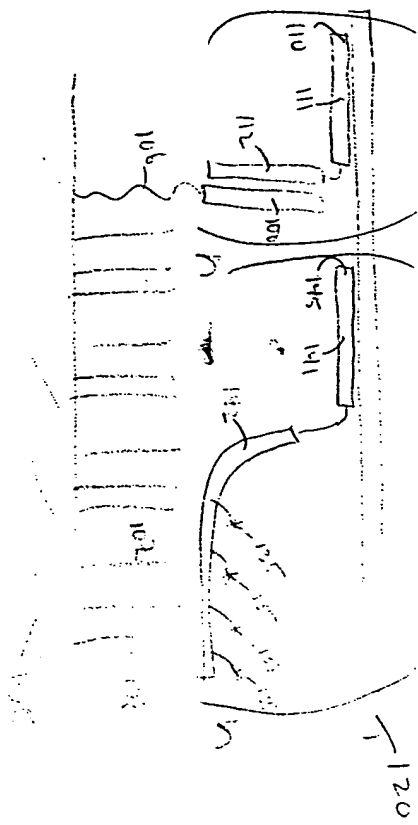
FIG.
15



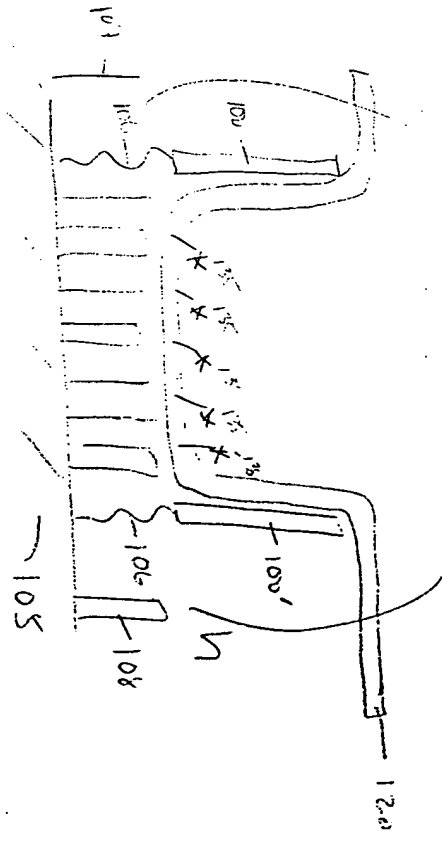
A



B

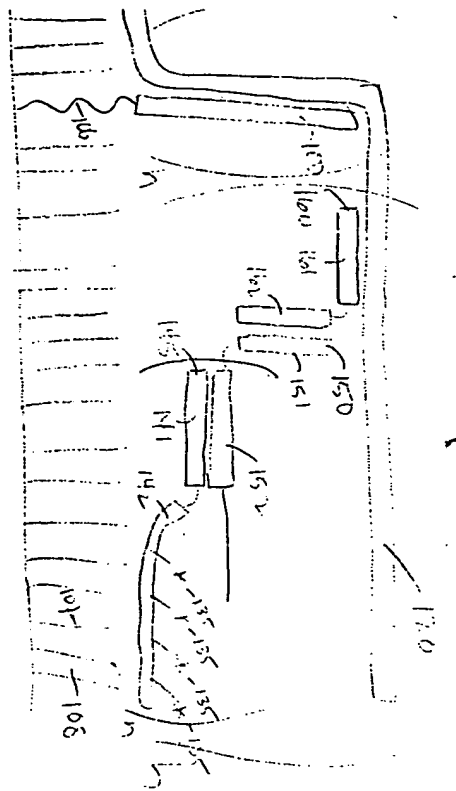


C

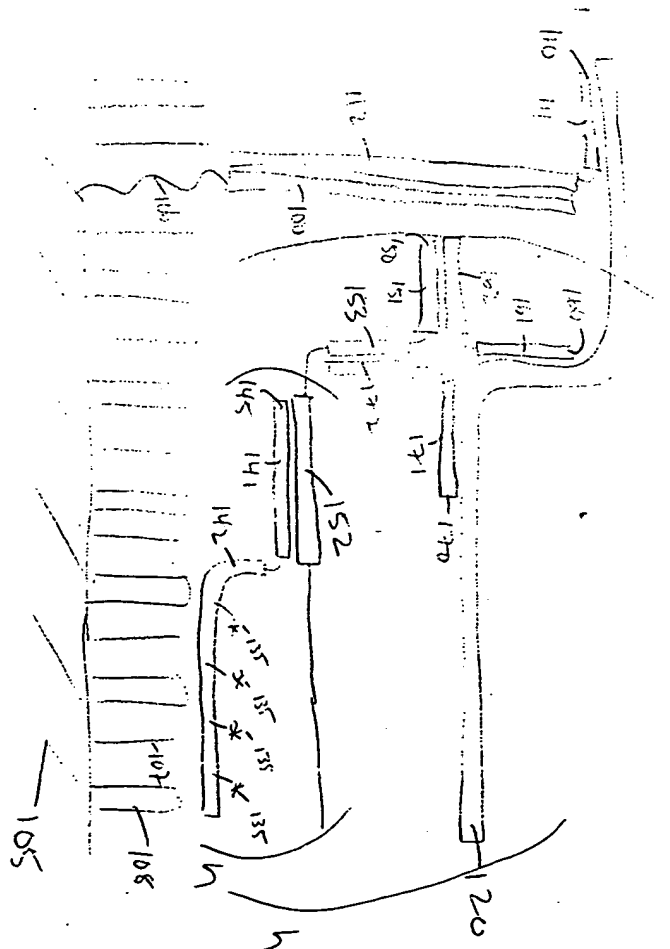


D

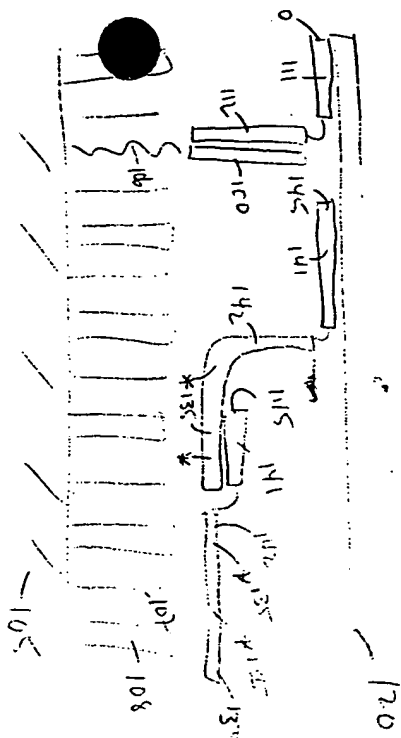
FIG 16



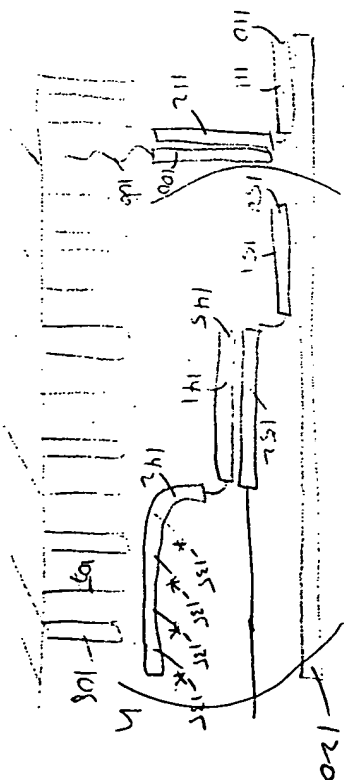
F



G



H



I

F16.
16

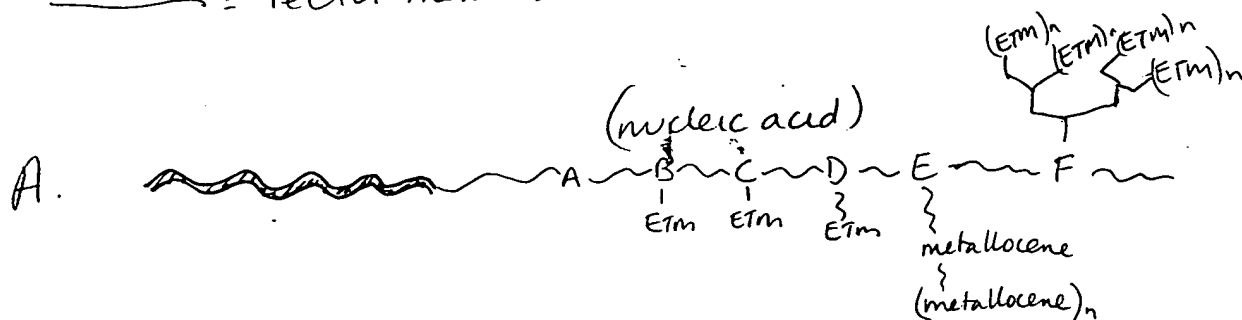
cont.

00135103, 0013700

label (probes)

~~~~~ = first, <sup>hybridizable</sup> portion of label probe

~~~~~ = recruitment linker



A = nucleoside replacement

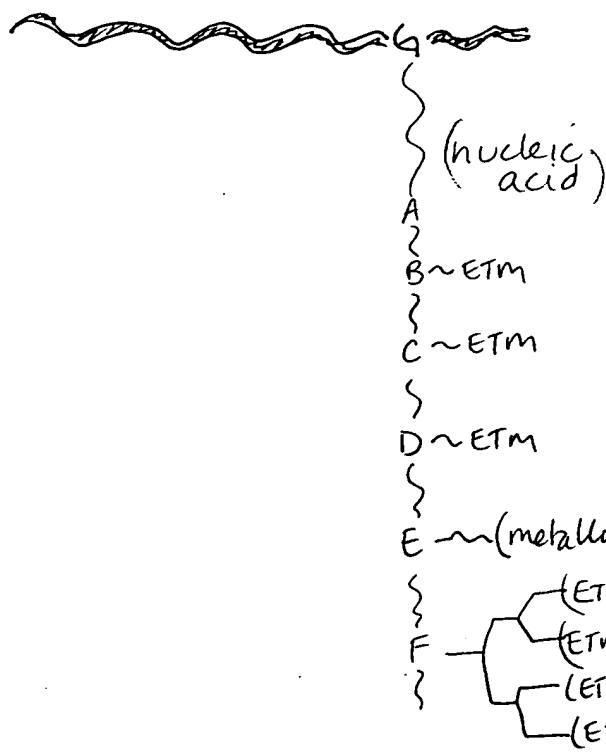
B = attachment to a base

C = attachment to a ribose

D = attachment to a phosphate

E = metallocene polymer, attached to a ribose, phosphate, or base

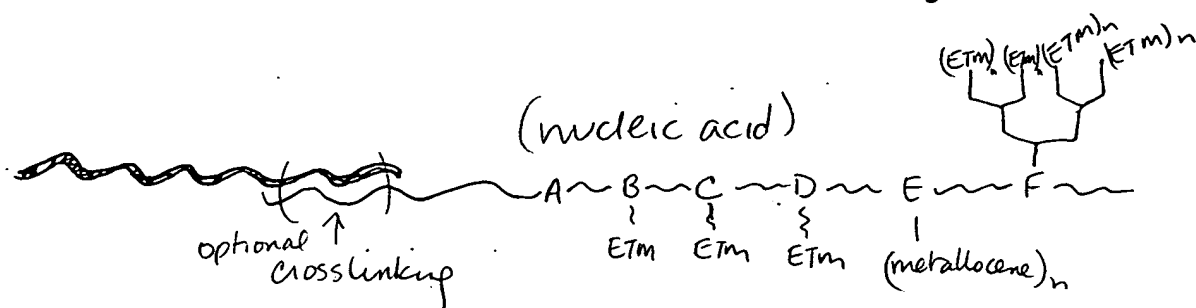
F = dendrimer structure, attached via a ribose, phosphate or base



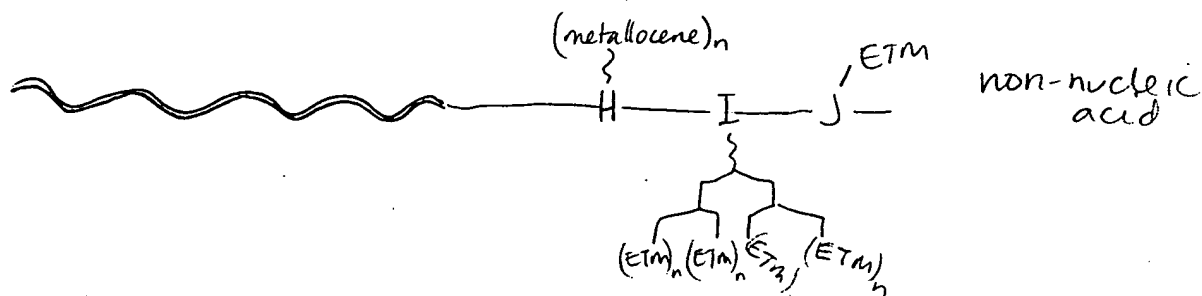
G = attachment via a "branching structure", through ribose, phosphate or base

FIG.
17

C.



D.



H = attachment of metallocene polymers

I = attachment via dendrimer structure

J = attachment using standard linkers

E.

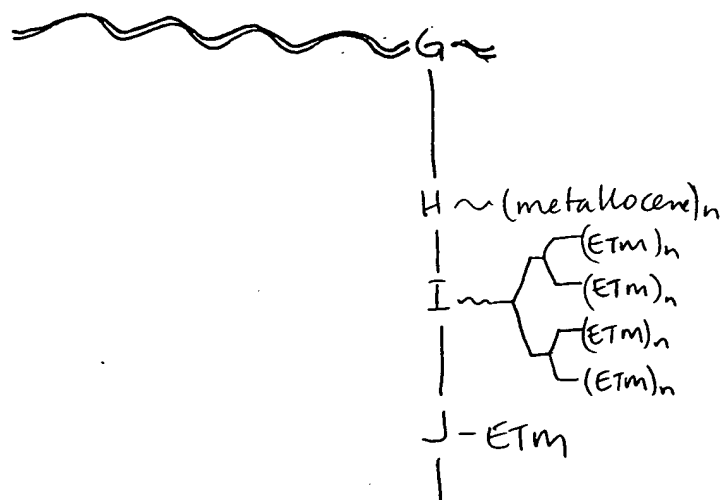


FIG.
17
cont

D179

5' - A(C15)CCTGGTCTTGACATCCACGGAAGGCGTGGAAATACGTATTCGTGCCTA - 3'

D309 (Dendrimer)

5' - (W38)(Branching)(Branching)CATGGTTAACGTCAATTGCTGCGGTTATTAA - 3'

D295

5' - (N6)G(N6)CT(N6)C(N6)G(N6)C(N6)CCCATGGTTAGACTGAATTGCTGCGGTTATTAA - 3'

D297

5' - (N6)G(N6)CT(N6)C(N6)G(N6)C(N6)TATGCTCTTGATGGTGCTGTGGAAATCTACTGG - 3'

D298

5' - (N6)G(N6)CT(N6)C(N6)G(N6)C(N6)ATGGTGCTGTGGAAATCTACTGG - 3'

D296

5' - (N6)G(N6)CT(N6)C(N6)G(N6)C(N6)TGACTGAATTGCTGCGGTTATTAA - 3'

D112

5' - CTTCCGTGGATGTCAAGACCAGGAU - 4 unit wire (C11) - 3'

D94

5' - ACCATGGACACAGAU - 4 unit wire (C11) - 3'

D109

5' - CTGCGGTTATTAACU - 4 unit wire (C11) - 3'

2Tar

5' - TAG GCA CGA ATA CGT ATT TCC ACG ATA AAT ATA ATT AAT AAC CGC AGC AAT TGA
CGT ATA AAG CTA TCC CAG TAG ATT TCC ACA GC - 3'

D349

5' - A(C15)C(C15)GT GTC CAT GGT AGT AGC TTA TCG TGG AAA TAC GTA TTC GTG
CCT A - 3'

D382

5' - (Y63)G(Y63) CT(Y63) C(Y63)G(Y63)C(Y63) CCC ATG GTT AGA CTG AAT TGC TGC GGT
TAT TAA - 3'

D383

5' - (Y63)G(Y63) CT(Y63) C(Y63)G(Y63)C(Y63) CCC ATG GTT AGA CTG GCT GTG GAA ATC
TAC TGG - 3'

D468

5' - (N6)G(N6) CT(N6) C(N6)G(N6)C(N6) (glen)(glen)(glen) CTT TAC TCC CTT CCT CCC CGC TGA
AAG TAC - 3'

D449

5' - CGG AGT TAG CCG GTG CTT CTT CTG CGG G(C131)(C131) (C131)(C131)(N6) G(N6)C
T(N6)C(N6)G(N6) C(N6)T - 3'

D417

5' - CTT TAC TCC CTT CCT CCC CGC TGA AAG TAC TTT ACA ACC C - 3'

FIG.
19

EUI

5' - ATC CTG GTC TTG ACA TCC ACG GAA GAT GTC CCT ACA GTC TCC ATC AGG CAG TTT
CCC AGA CA - 3'

MT1

5' - TCT ACA TGC CGT ACA TAC GGA ACG TAC GGA GCA TCC TGG TCT TGA CAT CCA CGG
AAG - 3'

D358

5' - (N6)G(N6) CT(N6) C(N6)G (N6)C(N6) CCG TAT GTA CGG CAT GTA GA - 3'

D334

5' - GCT ACT ACC ATG GAC ACA GAU - 4 unit wire (C11) - 3'

D335

5' - ACA GAC ATC AGA GTA ATC (N6)GC C(N6)G TC(N6) TGG (N6)T - 3'

LP280

5' - GAT TAC TCT GAT GTC TGT CCA TCT GTG TCC ATG GTA GTA GC - 3'

LN280

5' - GAT TAC TCT GAT GTC TGT CCT AGT ACG AGT CAG TCT CTC CA - 3'

NC112

5' - TCT ACA TGC CGT ACA TAC GGA ACG TAC GGA GCG ATT CGA CTG ACA GTC GTA ACC
TCA - 3'

D336

5' - (N6)G(N6) CT(N6) C(N6)G (N6)C(N6) GCG ACA ACT GTA CCA TCT GTG TCC ATG GT - 3'

D405

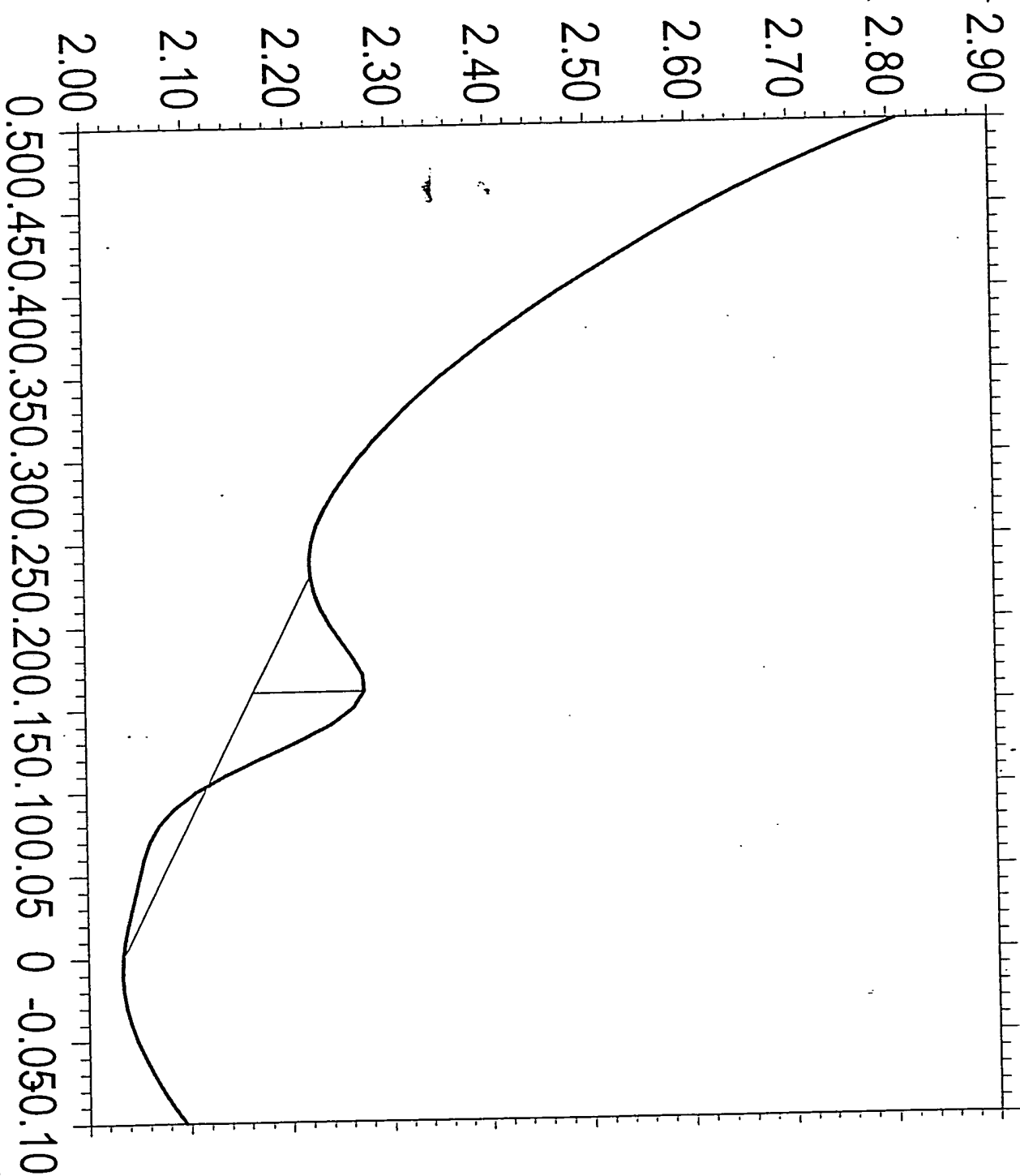
5' - (C23)(C23)(C23) (C23)(C23)(C23) (C23)(C23)(C23) (C23)AT CTG TGT CCA TGG T - 3'

D429

5' - (N6)G(N6) CT(N6) C(N6)G (N6)C(N6) (C131)AT CTG TGT CCA TGG TAG TAG C - 3'

FIG.
19 cont

Electrode # 55, d179+2tar+309+10%ACN



Mar. 19, 1998 17:18:47
Tech: ACV
File: a292_023
Init E (V) = -0.11
Final E (V) = 0.5
Incr E (V) = 0.01
Amplitude (V) = 0.025
Frequency (Hz) = 10
Sample Period (s) = 1
Quiet Time (s) = 2
Sensitivity (A/V) = 2e-7
Ep = 0.160V
ip = 1.092e-8A
Ap = 7.563e-10VA

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Clinical Micro Sensors, Inc.

Potential / V vs Ag/AgCl

←16.
20A

Electrode # 44, a1 / 9+309+10%ACV

Mar. 19, 1998 17:00:25

Tech: ACV

File: a292_019

Init E (V) = -0.11

Final E (V) = 0.5

Incr E (V) = 0.01

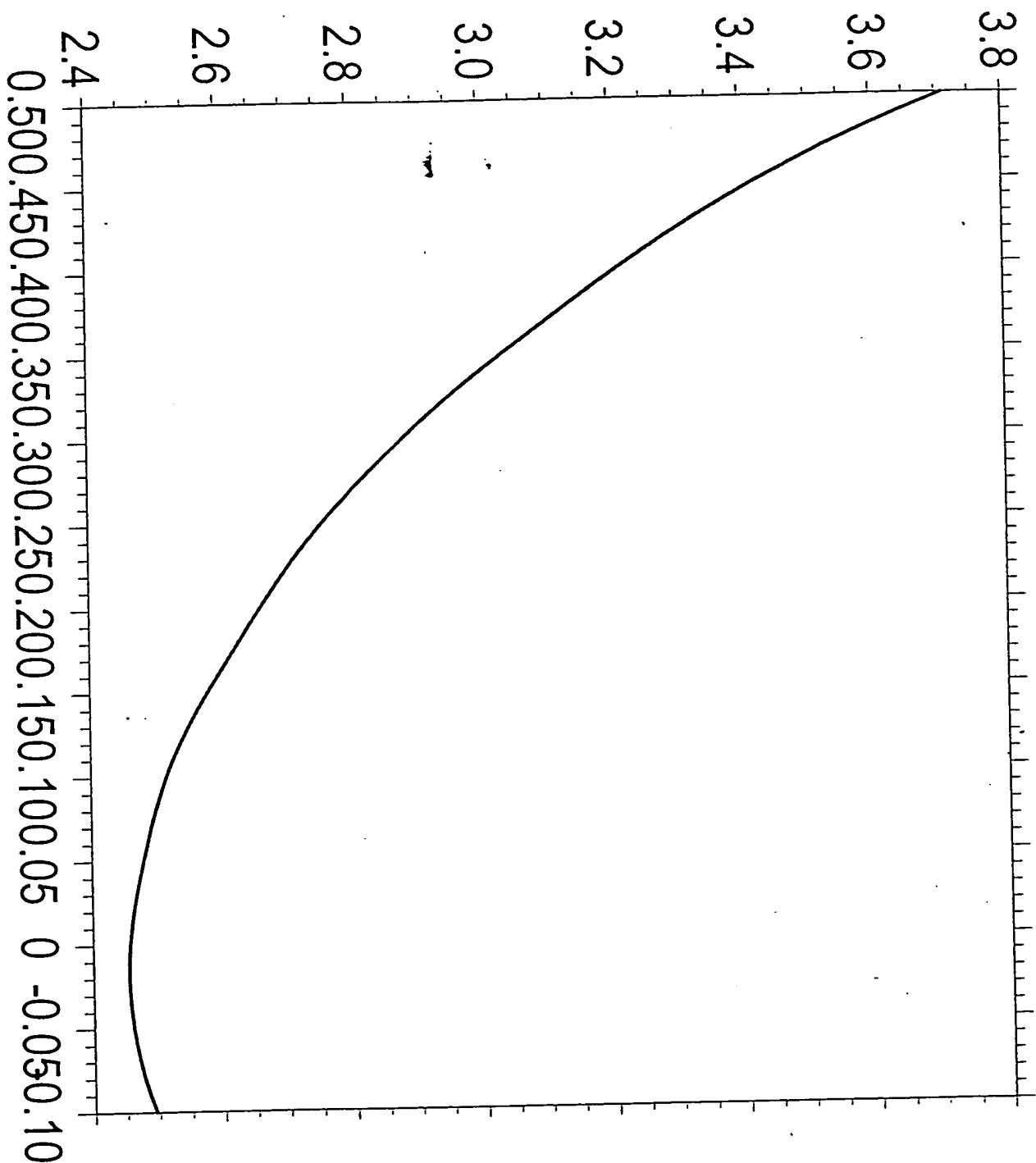
Amplitude (V) = 0.025

Frequency (Hz) = 10

Sample Period (s) = 1

Quiet Time (s) = 2

Sensitivity (AV) = 2e-7



CONFIDENTIAL PROPERTY OF
Clinical Micro Sensors, Inc.

Potential / V vs Ag/AgCl

FIG.
20B

electrode #25

May 14, 1998 16:37:13
Tech: ACV
File: a358_009
Init E (V) = -0.11
Final E (V) = 0.5
Incr E (V) = 0.01
Amplitude (V) = 0.025
Frequency (Hz) = 10
Sample Period (s) = 1
Quiet Time (s) = 2
Sensitivity (A/V) = 2e-7
Ep = 0.190V
ip = 2.046e-7A
Ap = 2.046e-8V/A

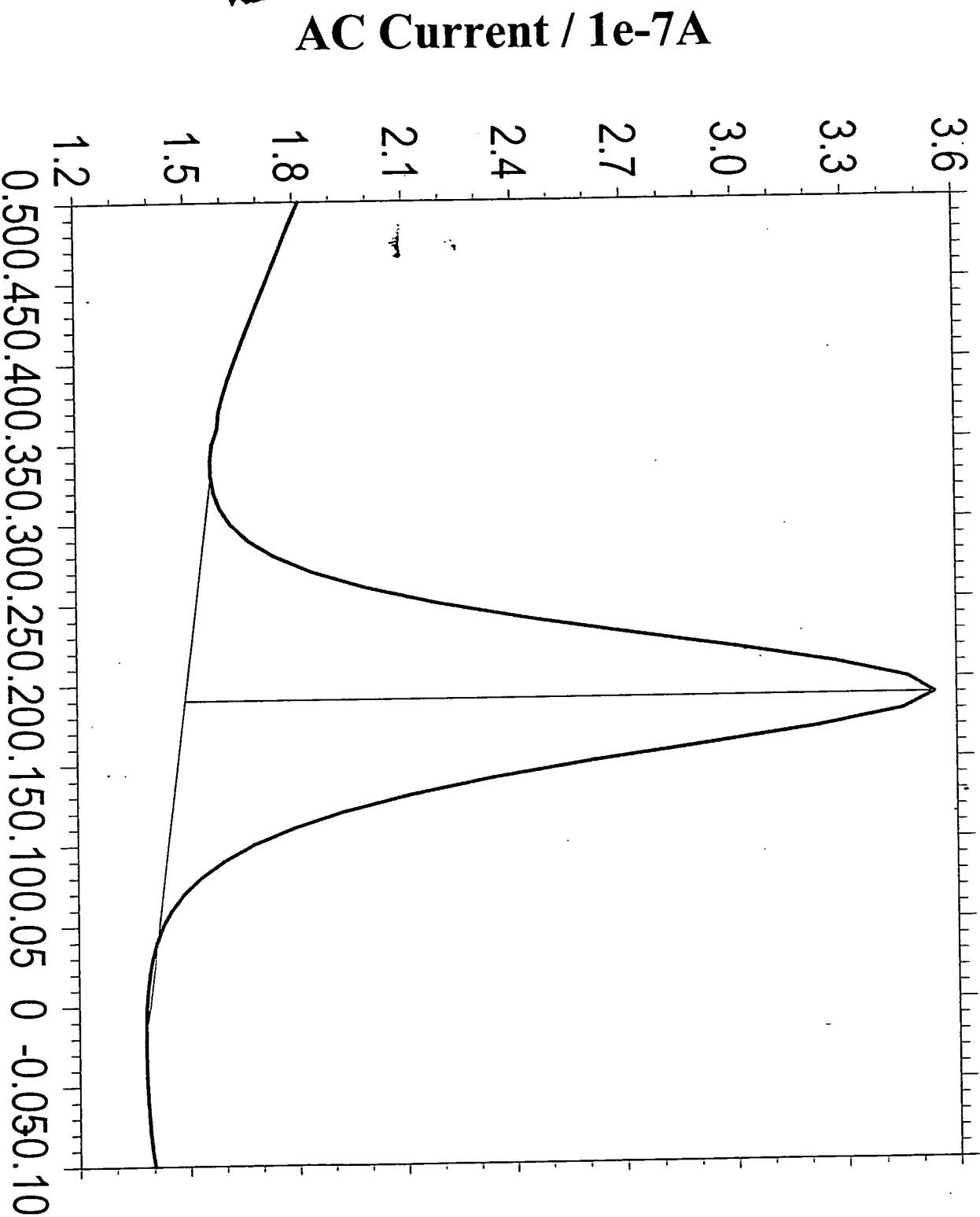


Fig.
20 C

electrode #37

May 14, 1998 16:58:47

Tech: ACV

File: a358_013

Init E (V) = -0.11

Final E (V) = 0.5

Incr E (V) = 0.01

Amplitude (V) = 0.025

Frequency (Hz) = 10

Sample Period (s) = 1

Quiet Time (s) = 2

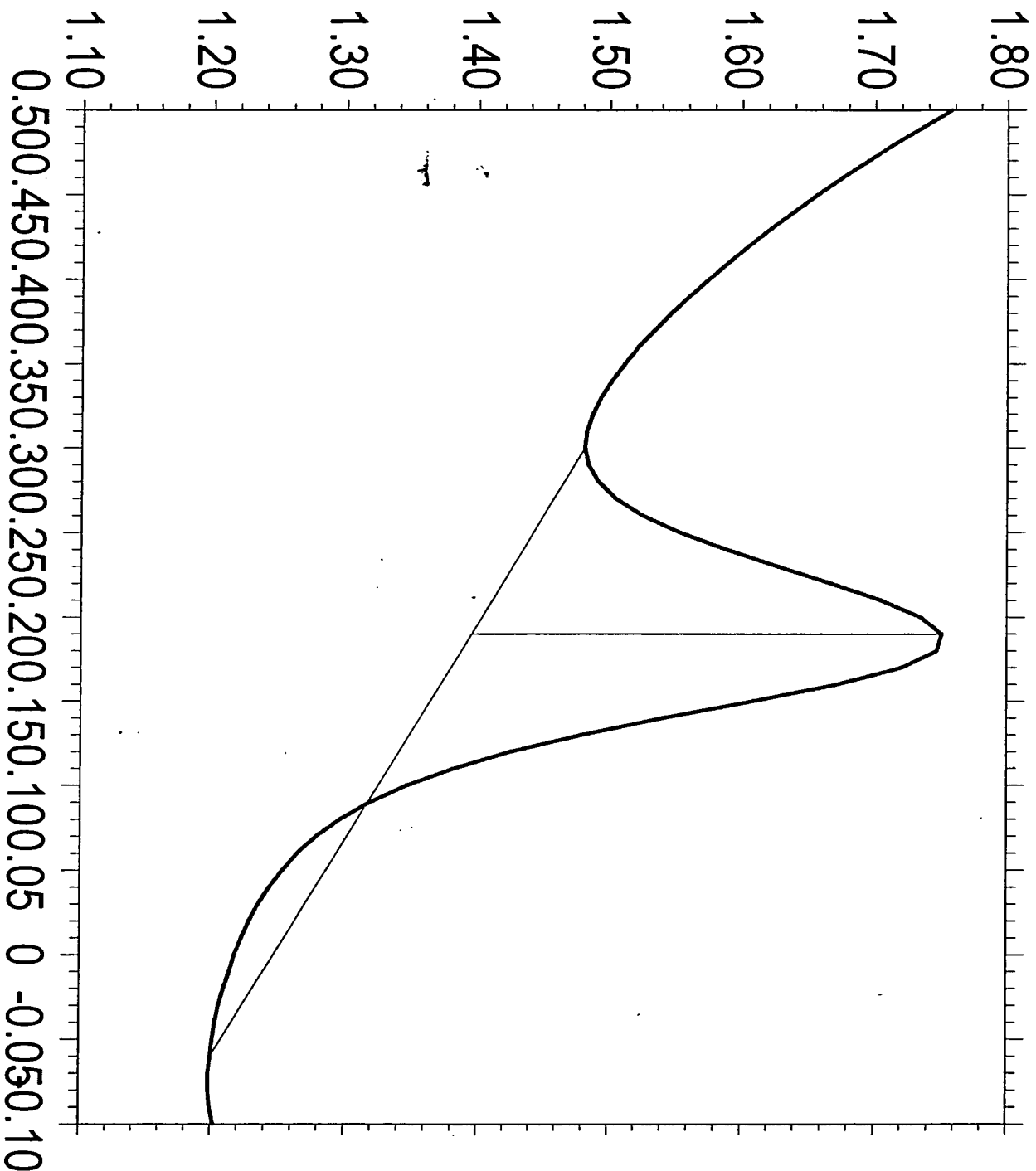
Sensitivity (A/V) = $2e-7$

Ep = 0.190V

ip = $3.552e-8$ A

Ap = $3.568e-9$ V/A

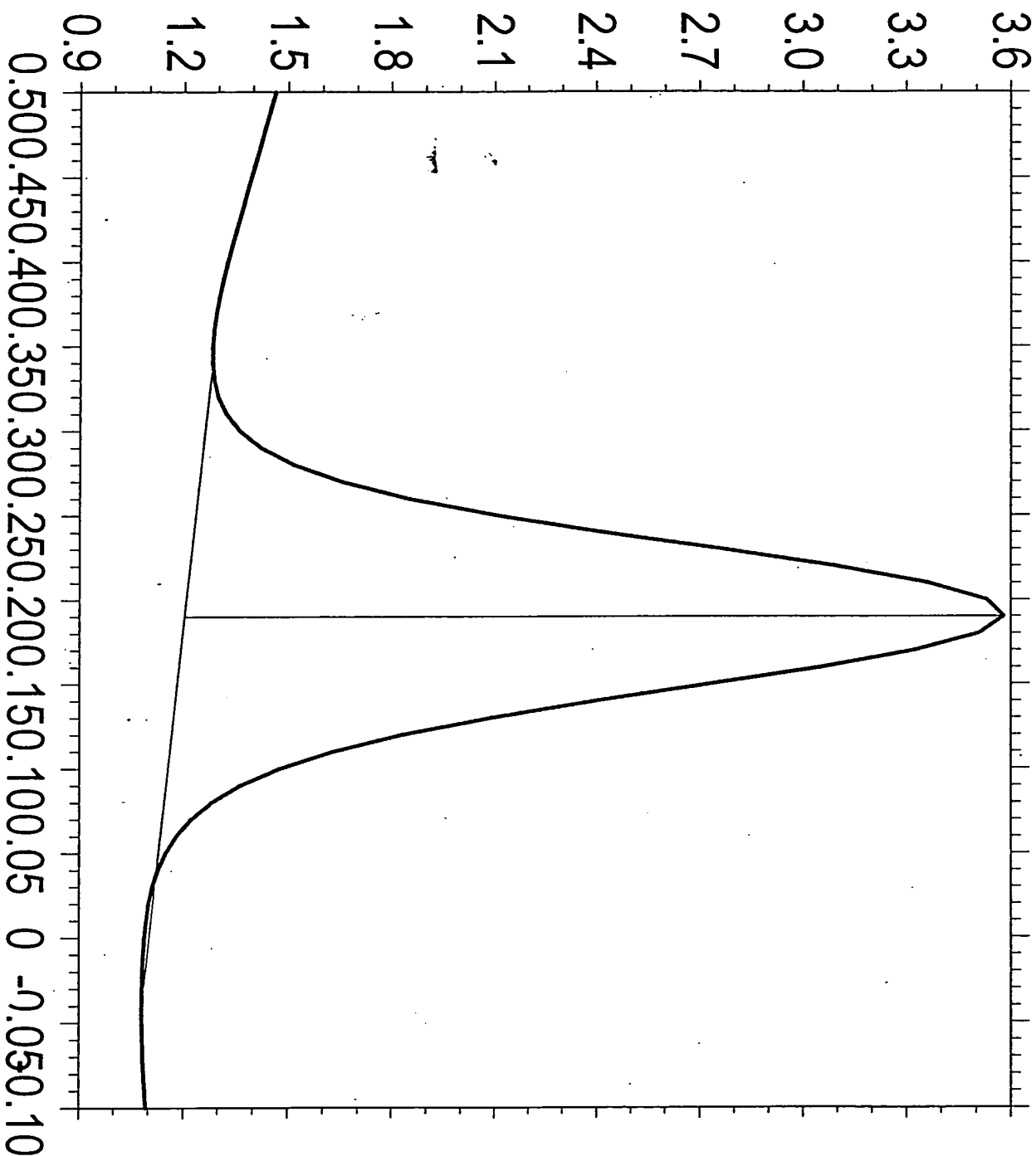
AC Current / $1e-7$ A



Potential / V vs Ag/AgCl

File: 20 D

Electrode 6



May 14, 1998 15:59:14

Tech: ACV

File: z039_002

Init E (V) = -0.11

Final E (V) = 0.5

Incr E (V) = 0.01

Amplitude (V) = 0.025

Frequency (Hz) = 10

Sample Period (s) = 1

Quiet Time (s) = 2

Sensitivity (A/V) = $2e-7$

E_p = 0.190V

i_p = 2.376e-7A

A_p = 2.594e-8V/A

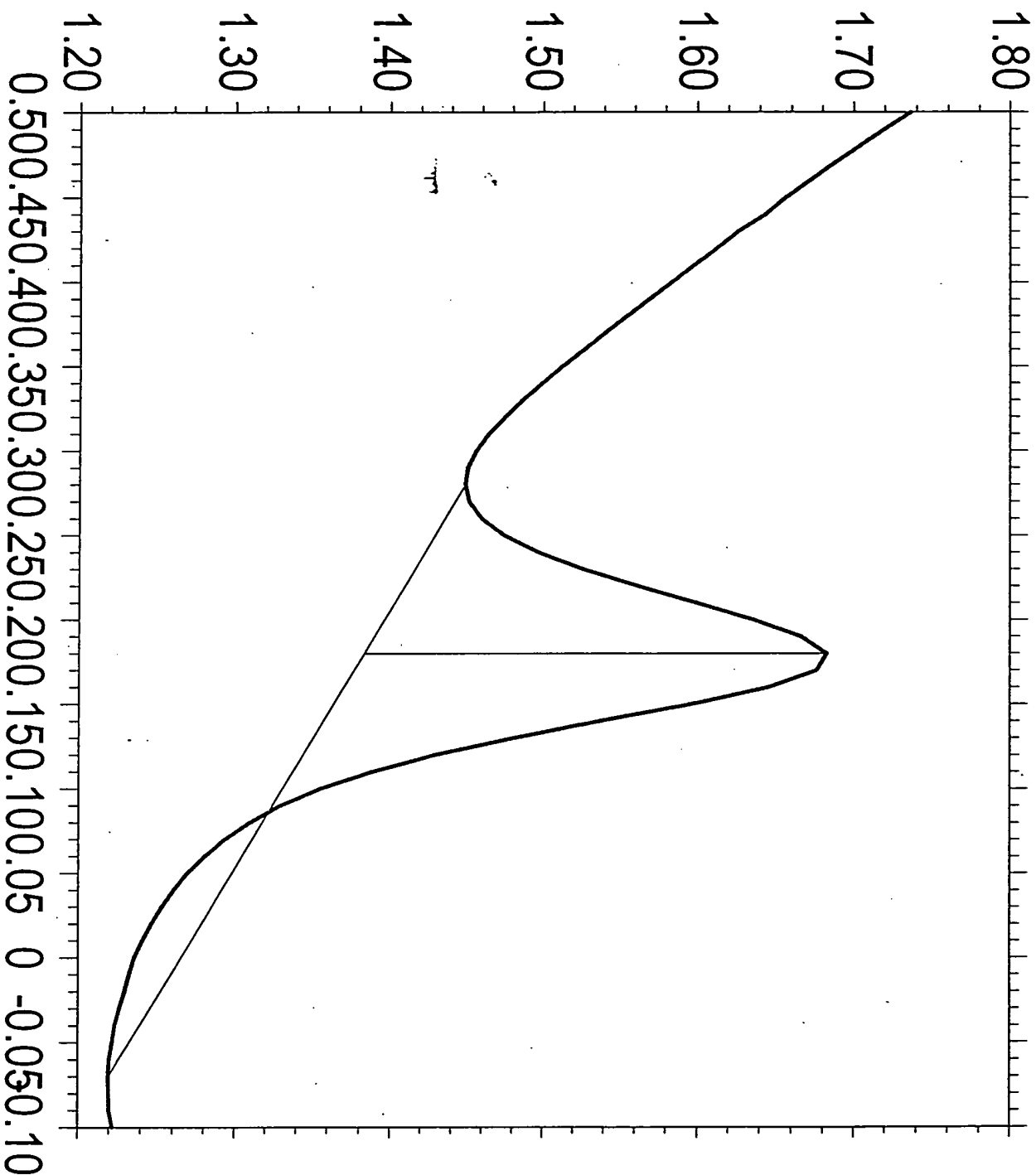
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Fig. E
20

electrode #40

14

AC Current / 1e-7A



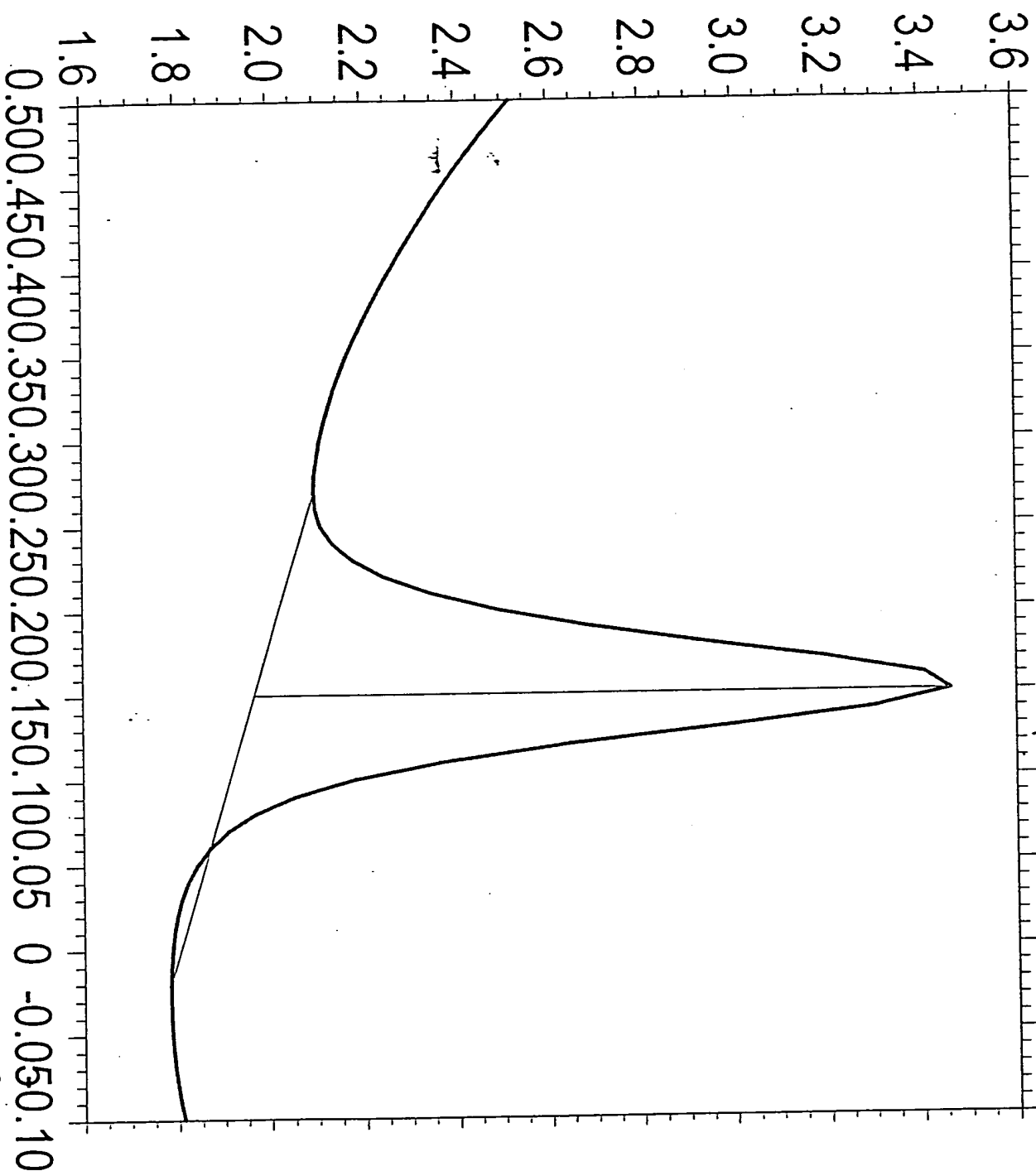
May 14, 1998 17:02:14
Tech: ACV
File: a358_014
Init E (V) = -0.11
Final E (V) = 0.5
Incr E (V) = 0.01
Amplitude (V) = 0.025
Frequency (Hz) = 10
Sample Period (s) = 1
Quiet Time (s) = 2
Sensitivity (A/V) = 2e-7
Ep = 0.180V
ip = 2.992e-8A
Ap = 2.709e-9VA

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Potential / V vs Ag/AgCl

Fig. 20 F

Electrode # 16



Mar. 19, 1998 16:00:02
 Tech: ACV
 File: v368_028
 Init E (V) = -0.11
 Final E (V) = 0.5
 Incr E (V) = 0.01
 Amplitude (V) = 0.025
 Frequency (Hz) = 10
 Sample Period (s) = 1
 Quiet Time (s) = 2
 Sensitivity (A/V) = 2e-7
 Ep = 0.150V
 ip = 1.494e-7A
 Ap = 1.100e-8V/A

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AC Current / 1e-7A

Potential / V vs Ag/AgCl

0.500.450.400.350.300.250.200.150.100.05 0 -0.050.10

F16.
 20 G

Electrode # 18

Mar. 19, 1998 16:17:15

Tech: ACV

File: v368_032

Init E (V) = -0.11

Final E (V) = 0.5

Incr E (V) = 0.01

Amplitude (V) = 0.025

Frequency (Hz) = 10

Sample Period (s) = 1

Quiet Time (s) = 2

Sensitivity (A/V) = 2e-7

Ep = 0.160V

ip = 1.967e-8A

Ap = 1.443e-9VA

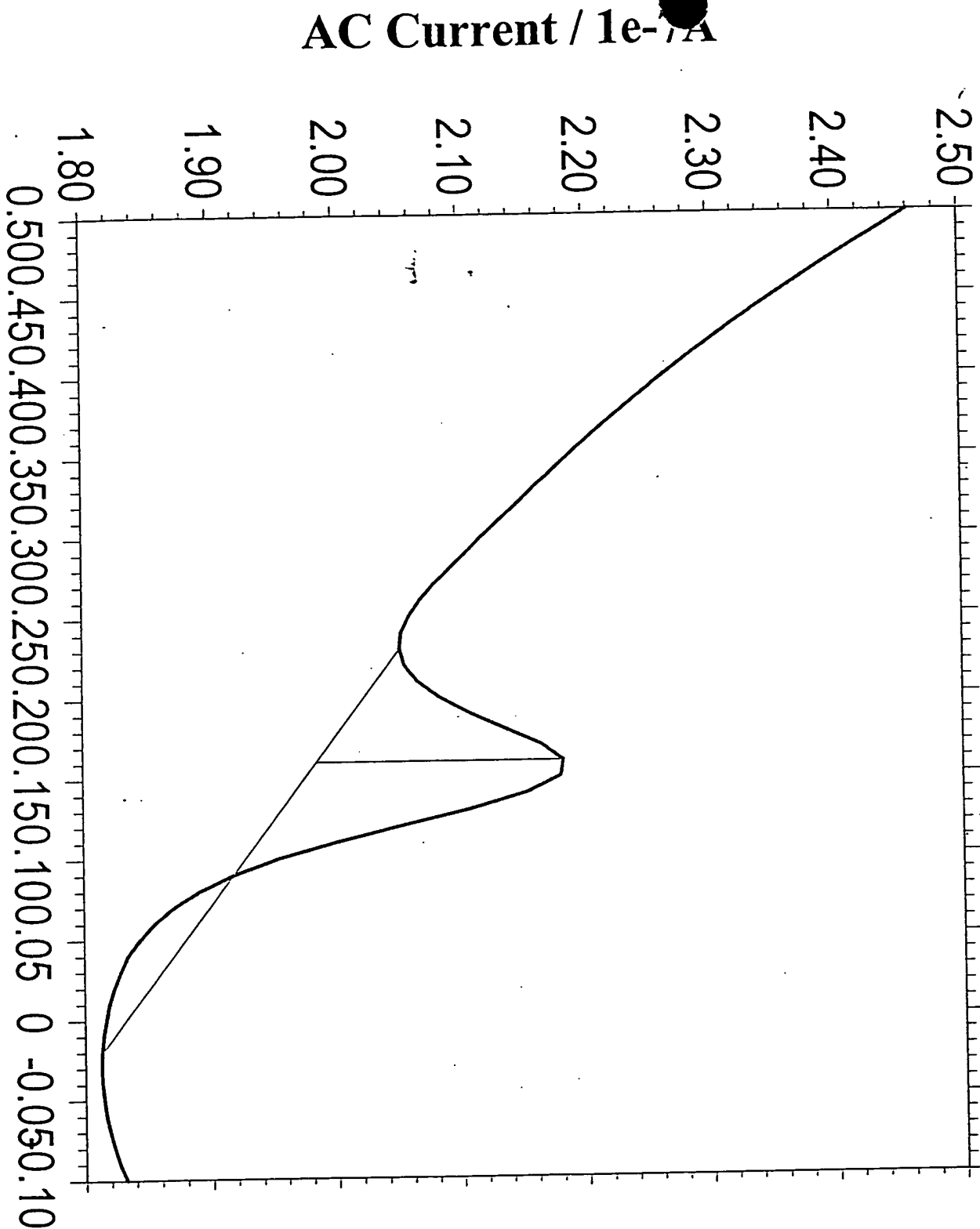
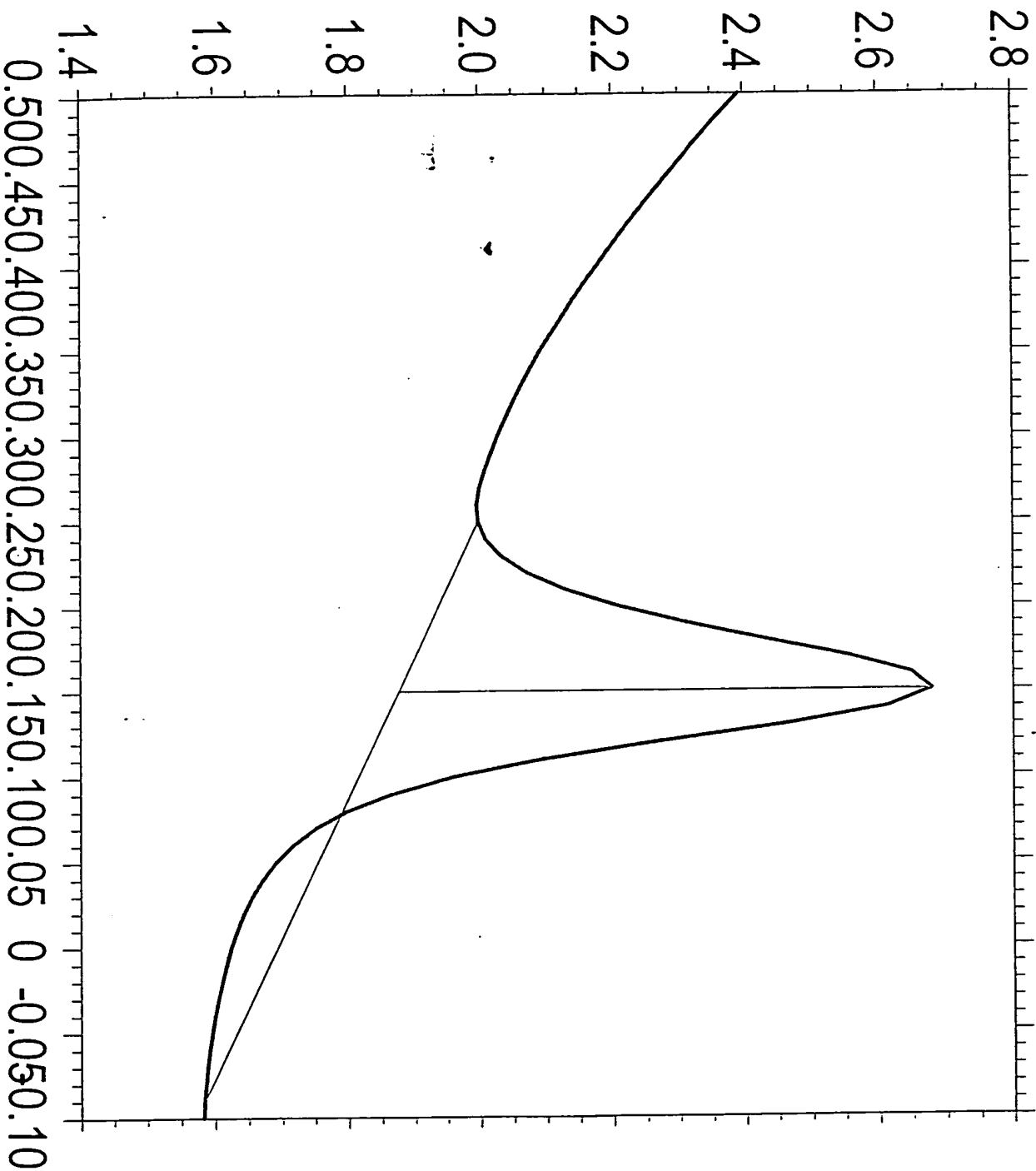


Fig. H
20

CONFIDENTIAL PROPERTY OF
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Electrode # 17

Mar. 19, 1998 16:13:12
 Tech: ACV
 File: v368_031
 Init E (V) = -0.11
 Final E (V) = 0.5
 Incr E (V) = 0.01
 Amplitude (V) = 0.025
 Frequency (Hz) = 10
 Sample Period (s) = 1
 Quiet Time (s) = 2
 Sensitivity (A/V) = 2e-7
 Ep = 0.150V
 ip = 8.031e-8A
 Ap = 6.033e-9VA



AC Current / 1e-7A

Potential / V vs Ag/AgCl

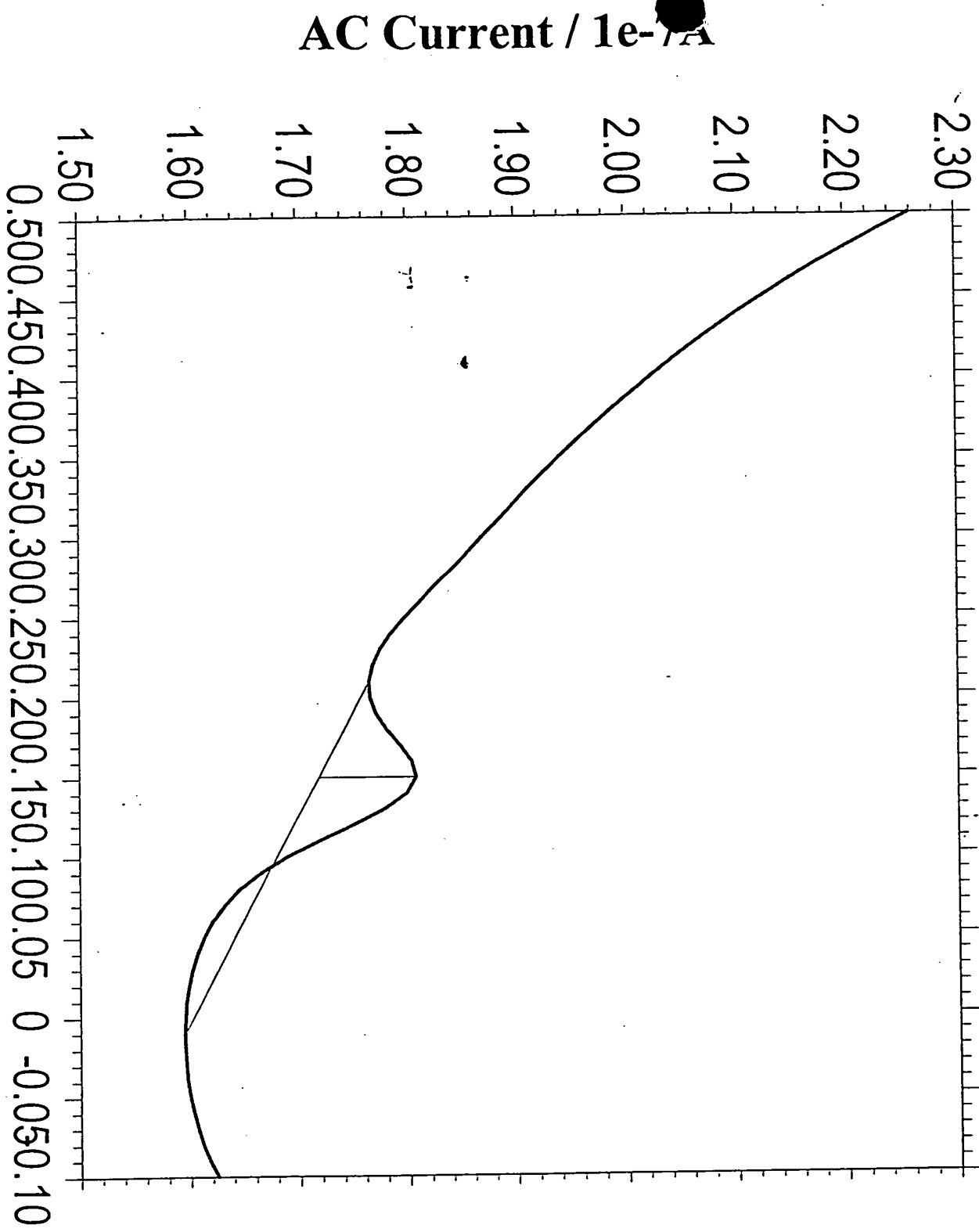
0.5 0.45 0.4 0.35 0.3 0.25 0.2 0.15 0.1 0.05 0 -0.05 0.10

Fig. 20 I

CONFIDENTIAL PROPERTY OF
 Clinical Micro Sensors, Inc.

Electrode # 13

Mar. 19, 1998 15:30:16
 Tech: ACV
 File: v368_019
 Init E (V) = -0.11
 Final E (V) = 0.5
 Incr E (V) = 0.01
 Amplitude (V) = 0.025
 Frequency (Hz) = 10
 Sample Period (s) = 1
 Quiet Time (s) = 2
 Sensitivity (A/V) = 2e-7
 Ep = 0.150V
 ip = 8.871e-9A
 Ap = 5.512e-10VA

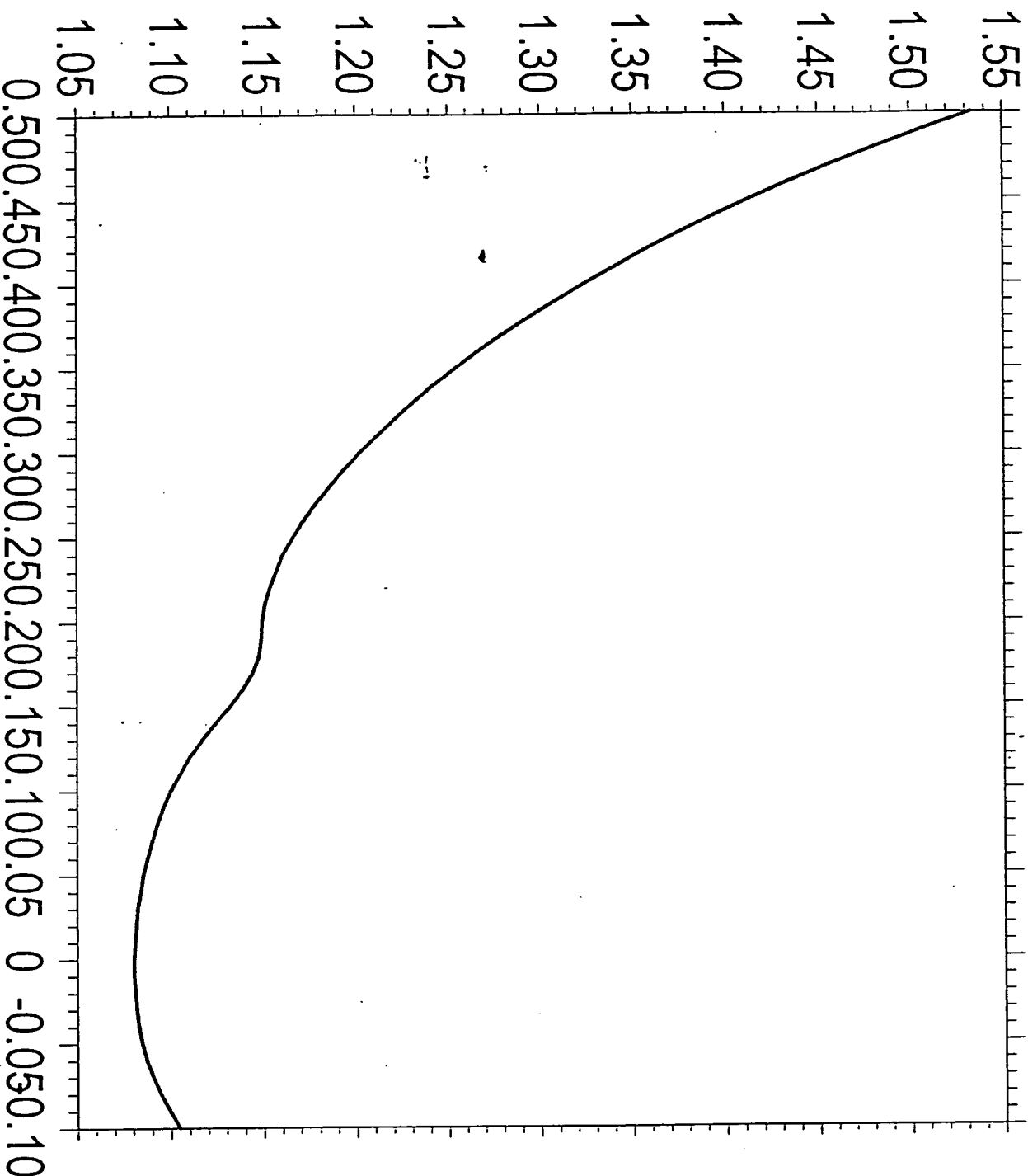


Potential / V vs Ag/AgCl

File: 20, 5

CONFIDENTIAL PROPERTY OF
 Clinical Micro Sensors, Inc.

Electrode #22

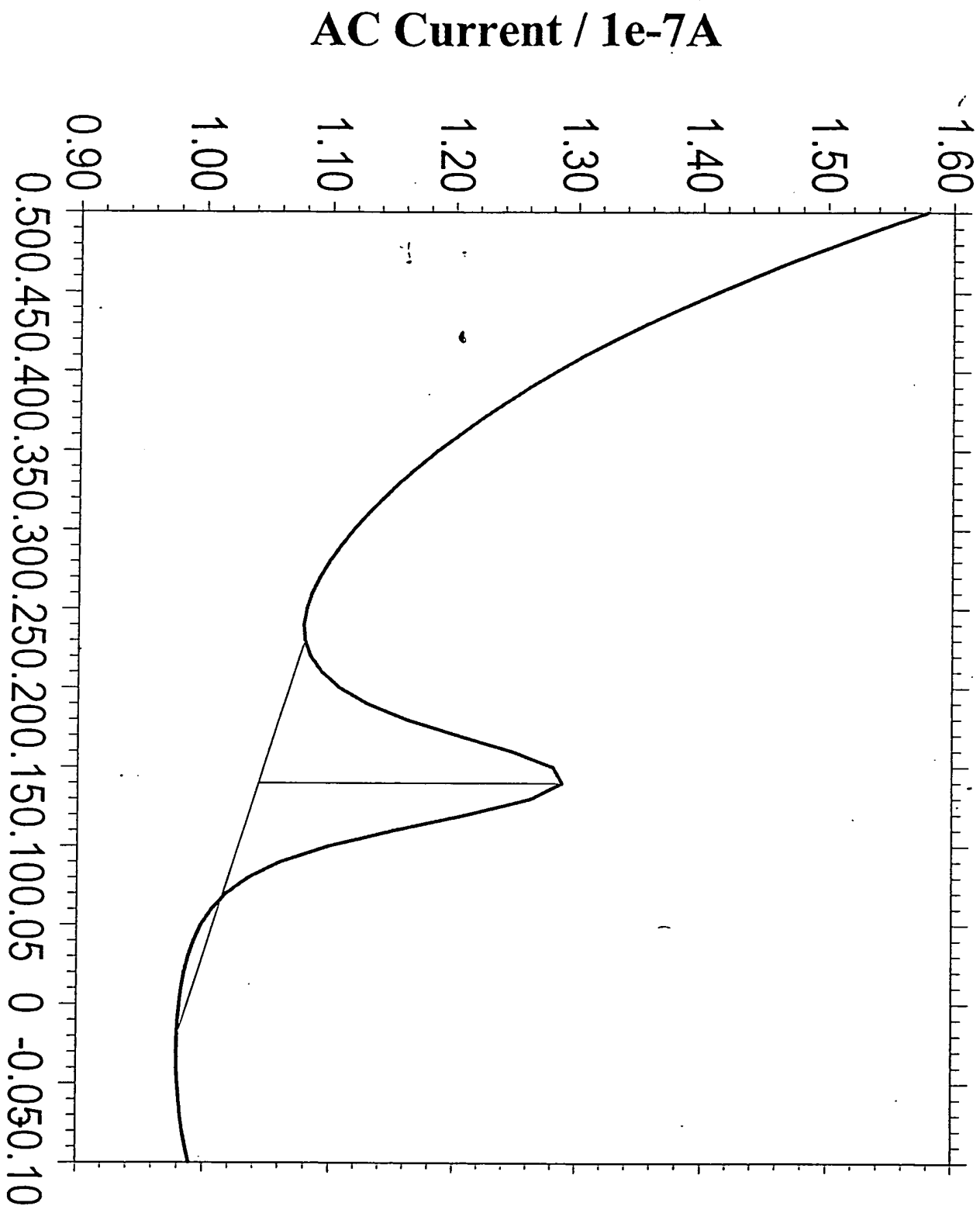


May 26, 1998 16:38:44
 Tech: ACV
 File: a371_008
 Init E (V) = -0.11
 Final E (V) = 0.5
 Incr E (V) = 0.01
 Amplitude (V) = 0.025
 Frequency (Hz) = 10
 Sample Period (s) = 1
 Quiet Time (s) = 2
 Sensitivity (A/V) = 2×10^{-7}

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 Clinical Micro Sensors, Inc.**

Potential / V vs Ag/AgCl
 F-16
 20 K

Electrode #15



Apr. 6, 1998 13:58:20
 Tech: ACV
 File: u059_013
 Init E (V) = -0.11
 Final E (V) = 0.5
 Incr E (V) = 0.01
 Amplitude (V) = 0.025
 Frequency (Hz) = 10
 Sample Period (s) = 1
 Quiet Time (s) = 2
 Sensitivity (A/V) = 1e-6
 Ep = 0.140V
 ip = 2.449e-8A
 Ap = 1.706e-9VA

**CONFIDENTIAL PROPERTY OF
 Clinical Micro Sensors, Inc.**

Potential / V
 0.50 0.45 0.40 0.35 0.30 0.25 0.20 0.15 0.10 0.05 0 -0.05 0.10
 Fig. 20

Electrode #63

Apr. 3, 1998 18:02:37

Tech: ACV

File: g200_033

Init E (V) = -0.11

Final E (V) = 0.5

Incr E (V) = 0.01

Amplitude (V) = 0.025

Frequency (Hz) = 10

Sample Period (s) = 1

Quiet Time (s) = 2

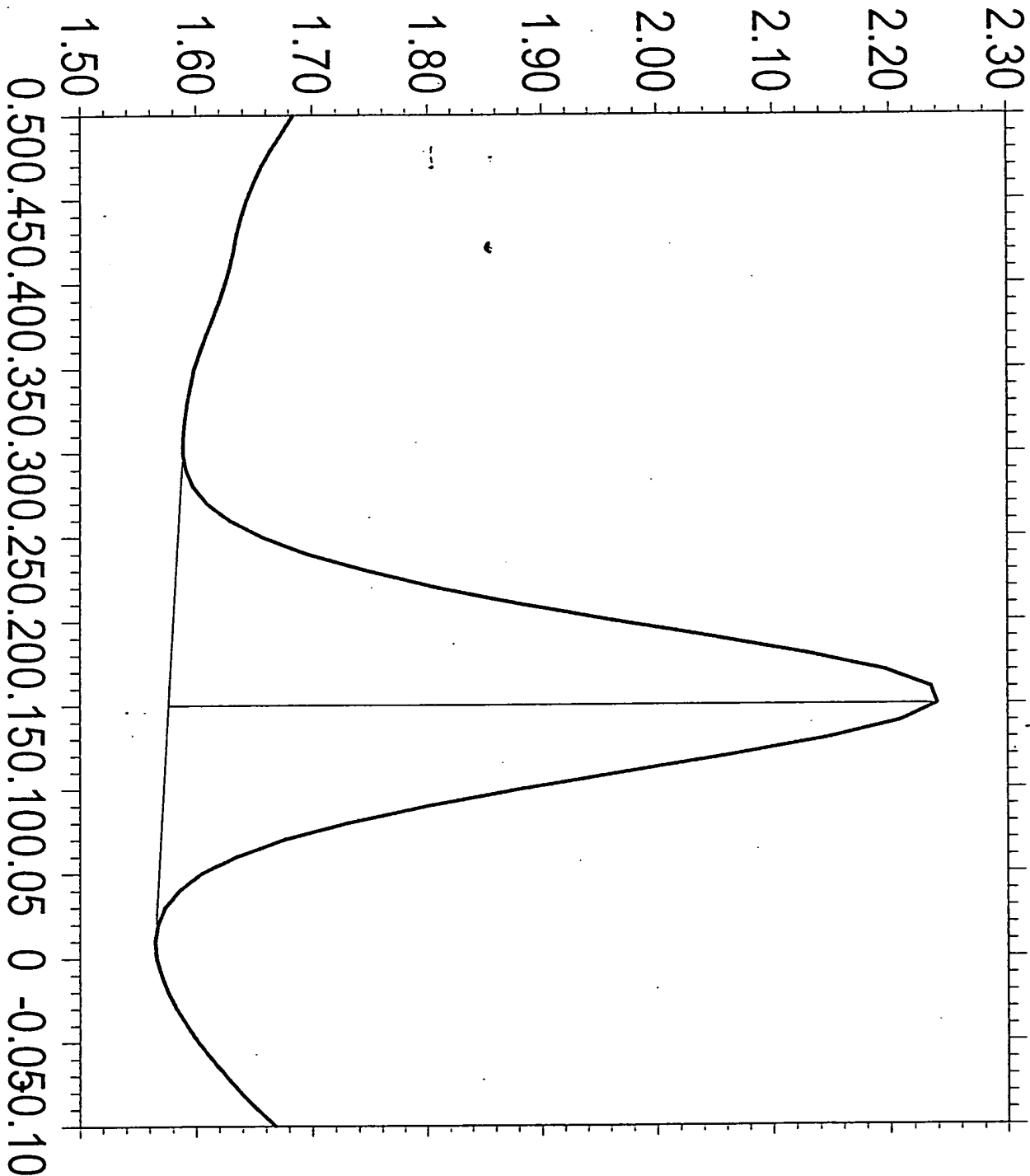
Sensitivity (A/V) = $2e-7$

Ep = 0.150V

ip = $6.637e-8A$

Ap = $7.335e-9VA$

AC Current / $1e-7A$



Potential / V vs Ag/AgCl

File: g200_033
20 M

**CONFIDENTIAL PROPERTY OF
Clinical Micro Sensors, Inc.**

Electrode #25

May 21, 1998 15:52:41

Tech: ACV

File: a367_007

Init E (V) = -0.11

Final E (V) = 0.5

Incr E (V) = 0.01

Amplitude (V) = 0.025

Frequency (Hz) = 10

Sample Period (s) = 1

Quiet Time (s) = 2

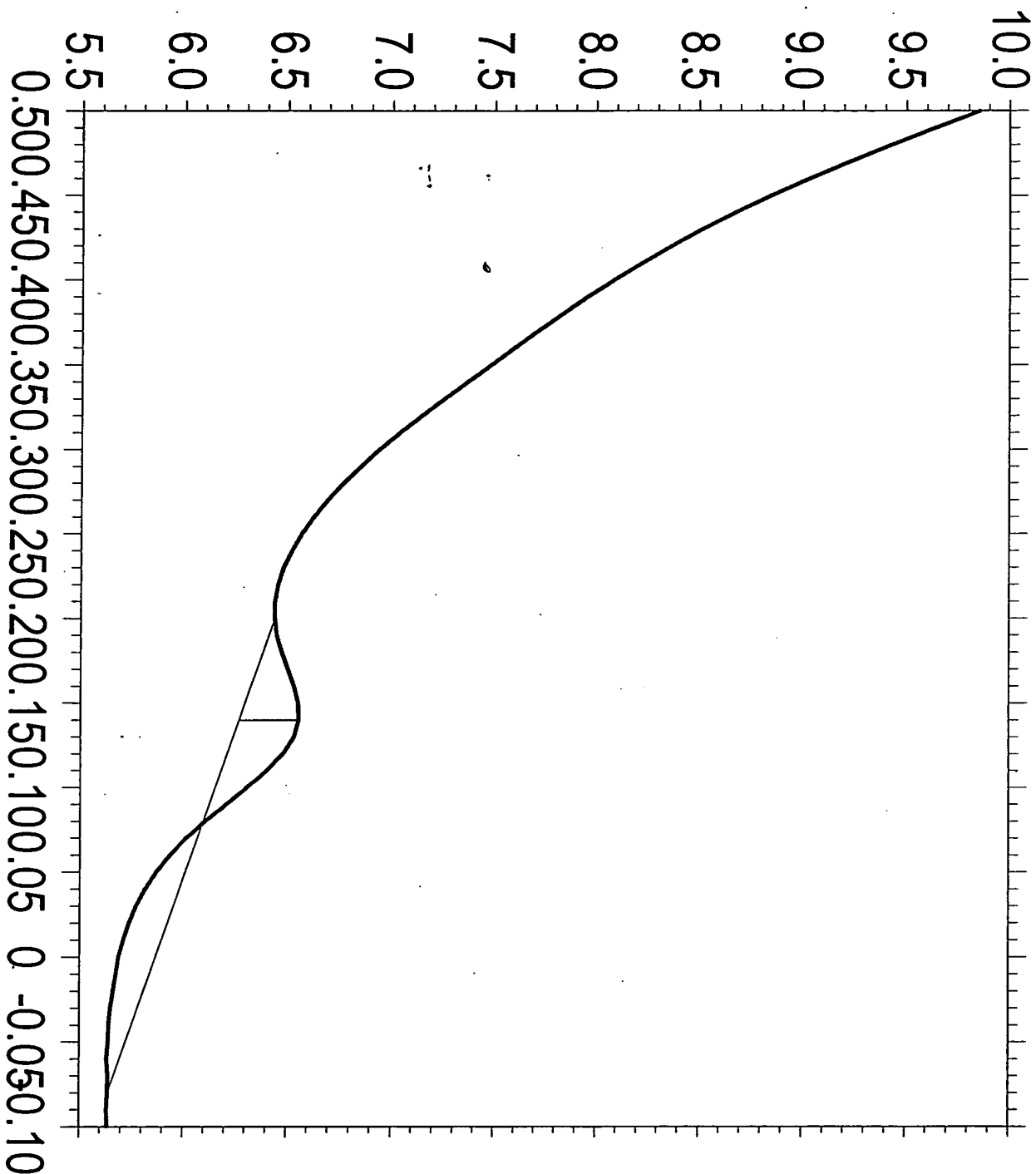
Sensitivity (A/V) = 2×10^{-7}

Ep = 0.140V

ip = 2.877×10^{-9} A

Ap = 2.056×10 VA

AC Current / 1×10^{-9} A



Potential / V vs Ag/AgCl

0.500 0.450 0.400 0.350 0.300 0.250 0.200 0.150 0.100 0.050 0 -0.050 -0.10

Fig.
20 N

Electrode #63

May 21, 1998 16:44:35

Tech: ACV

File: a367_020

Init E (V) = -0.11

Final E (V) = 0.5

Incr E (V) = 0.01

Amplitude (V) = 0.025

Frequency (Hz) = 10

Sample Period (s) = 1

Quiet Time (s) = 2

Sensitivity (A/V) = 2e-7

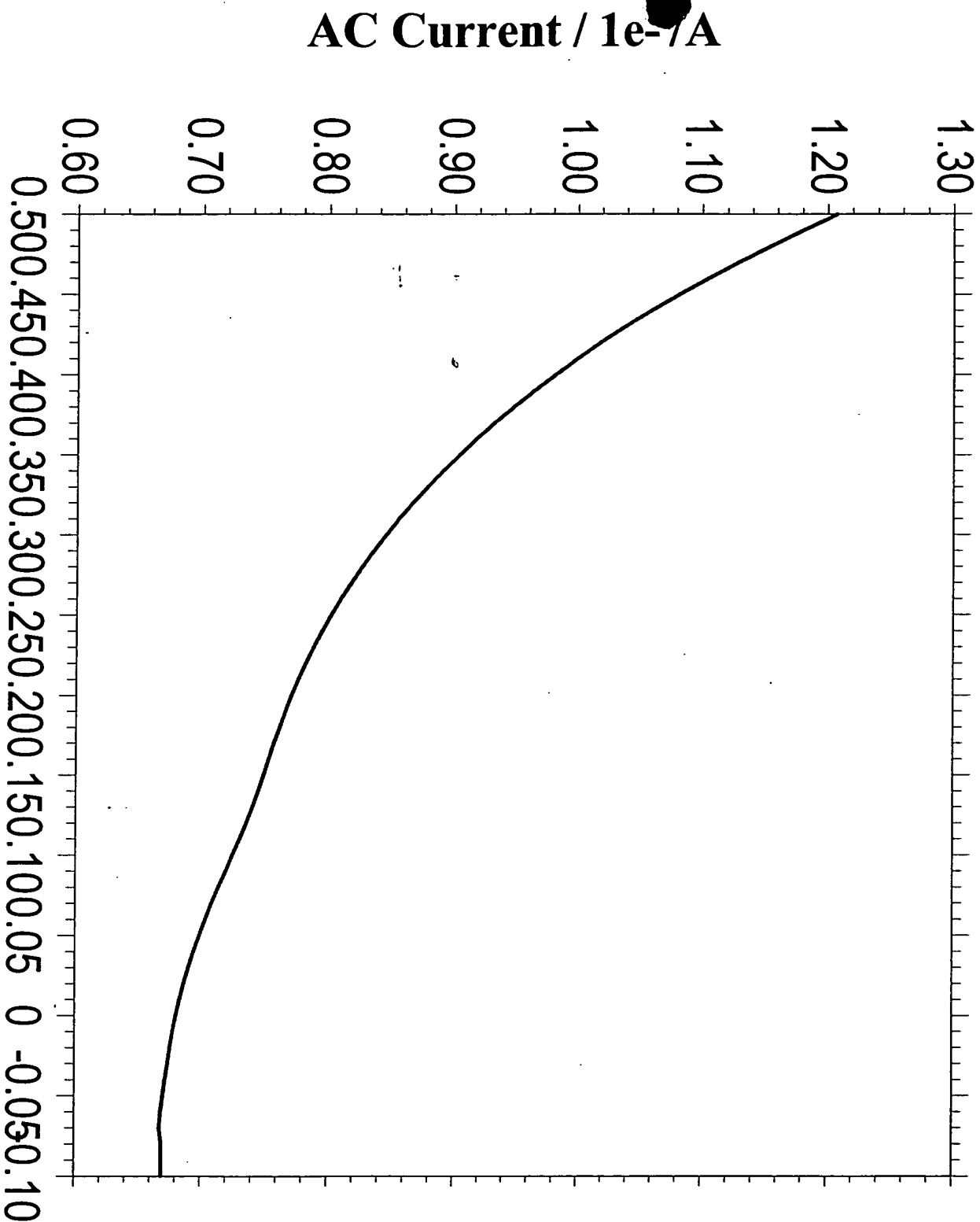


Fig. 20

Potential / V vs Ag/AgCl

0.500.450.400.350.300.250.200.150.100.05 0 -0.050.10

Sequences for Ligation Experiment

D456

5' - (N6)G(N6) CT(N6) C(N6)G (N6)C(N6) TTC TGC ACC GTA GCC ATG AAA GAT TGT ACT GAG - 3'

D368

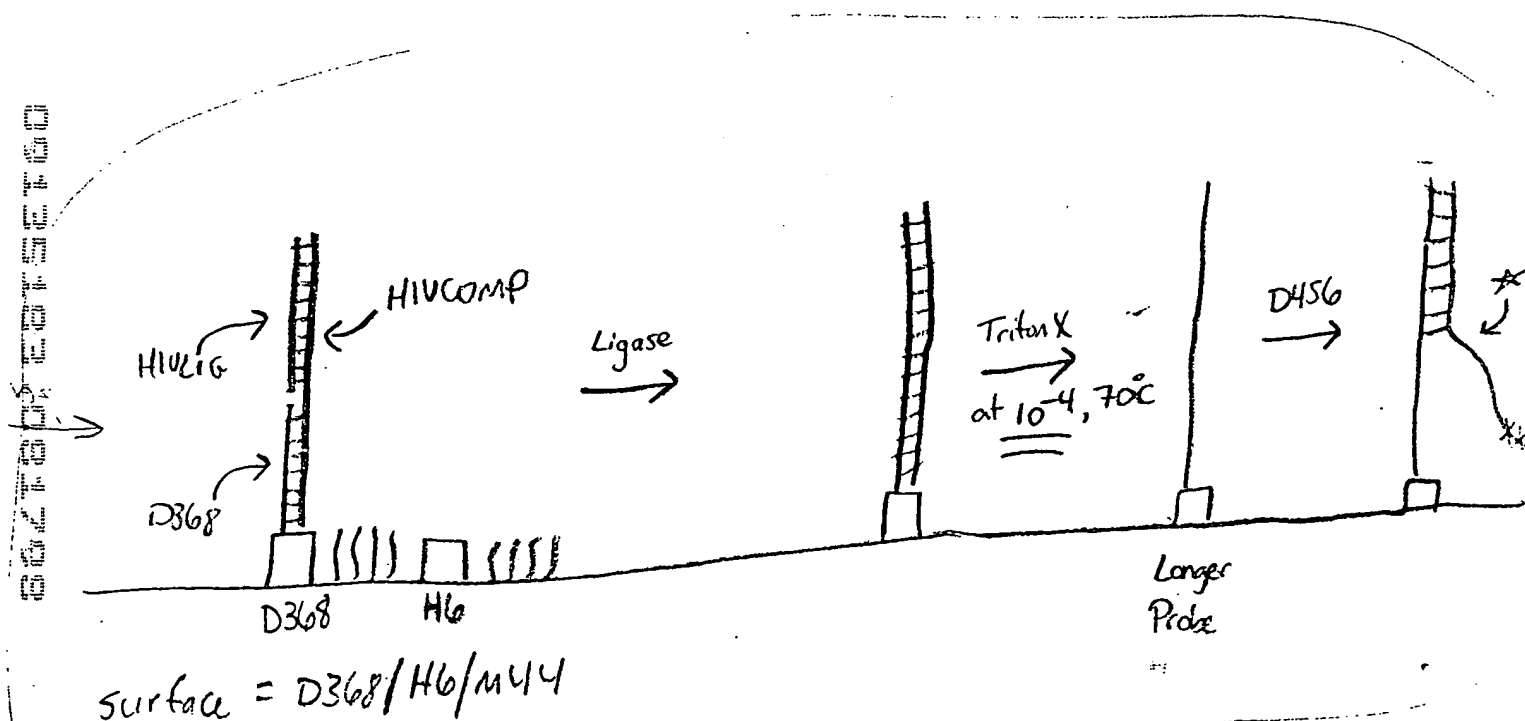
5' - (H2)CC TTC CTT TCC ACA U - 4 UNIT WIRE (C11) - 3'

HIVCOMP

5' - ATG TGG AAA GGA AGG ACA CCA AAT GAA AGA TTG TAC TGA GAG ACA GGC TAA TTT TTT AGG GAA GAT CTG G - 3'

HIVLIG

5' - CCA GAT CTT CCC TAA AAA ATT AGC CTG TCT CTC AGT ACA ATC TTT CAT TTG GTG T - 3'



* this detachment point is above the ligation point, so that a surface probe that was not ligated would not signal.

FIG. 21

Other ip's

| Measurer | File | Electrode # | Hybrid code | Ip (nA) | Average Ip (nA) | STDEV Ip (nA) | Potential (mV) | Ip (nA) | Potential (mV) |
|----------|------|-------------|---------------------|---------|-----------------|---------------|----------------|---------|----------------|
| A | 1 | 7 | (1+) EU2+reg | 0 | | | -- | 1.593 | 70 |
| B | 3 | 8 | helpers+reg | 0 | 0.36 | 0.71 | -- | | |
| B | 4 | 6 | system | 0 | | | -- | | |
| JB | 3 | 5 | | 1.42 | | | 60 | | |
| A | 2 | 3 | (1+) rRNA EU2+reg | 0.7449 | | | 160 | | |
| B | 1 | 4 | helpers+reg | 0.196 | 0.63 | 0.29 | 140 | | |
| JB | 1 | 1 | system | 0.8547 | | | 160 | | |
| JB | 2 | 2 | | 0.722 | | | 160 | | |
| A | 5 | 13 | (2-) EU2+EU1,2 | 0.3146 | | | 160 | 0.2506 | 70 |
| A | 6 | 15 | reg helpers+re | 0.3441 | 0.19 | 0.17 | 170 | 0.8442 | 80 |
| JB | 4 | 14 | system | 0 | | | -- | | |
| JB | 6 | 16 | | 0.11 | | | 160 | | |
| A | 3 | 11 | (2+) rRNA EU2+EU1,2 | 0.586 | | | 170 | 0.05 | 70 |
| A | 4 | 12 | reg helpers+reg | 1 | 1.06 | 0.51 | 160 | | |
| B | 2 | 9 | system | 1.6 | | | 150 | 2.4 | 50 |
| A | 8 | 22 | (3-) (2) 20-Fc | 2.661 | | | 160 | | |
| B | 5 | 23 | ETMs+reg | 0.9 | 3.03 | 2.99 | 160 | 2.8 | 120 |
| B | 8 | 24 | system | 1.2 | | | 160 | | |
| JB | 7 | 21 | | 7.376 | | | 150 | | |
| A | 7 | 18 | (3+) rRNA+ (2) 20- | 1.756 | | | 170 | 0.4778 | 350 |
| B | 6 | 19 | Fc ETMs+reg | 0.77 | 2.99 | 2.76 | 120 | | |
| B | 7 | 20 | system | 7 | | | 150 | | |
| JB | 5 | 17 | | 2.448 | | | 160 | | |
| A | 11 | 29 | (4-) (2) 40-Fc | 1.426 | | | 180 | 0.1 | 70 |
| B | 10 | 32 | ETMs+reg | 3 | 2.42 | 1.11 | 150 | | |
| B | 11 | 31 | system | 3.7 | | | 150 | | |
| JB | 9 | 30 | | 1.571 | | | 170 | | |
| A | 9 | 25 | (4+) rRNA+(2) 40- | 12.49 | | | 160 | | |
| A | 10 | 26 | Fc ETMs+reg | 9.278 | 7.46 | 4.16 | 160 | | |
| B | 9 | 28 | system | 4 | | | 130 | | |
| JB | 8 | 27 | | 4.088 | | | 150 | | |

FS
23A

(1) The use of the word "and" in the first sentence of the first paragraph of the first section of the act is not intended to be construed as a conjunctive word, but as a disjunctive word, and the word "or" should be inserted after the word "and" in the first sentence of the first paragraph of the first section of the act.

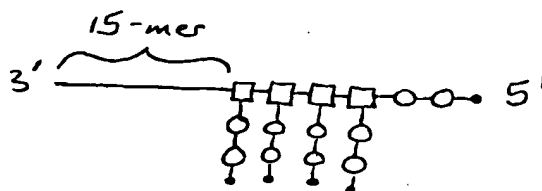
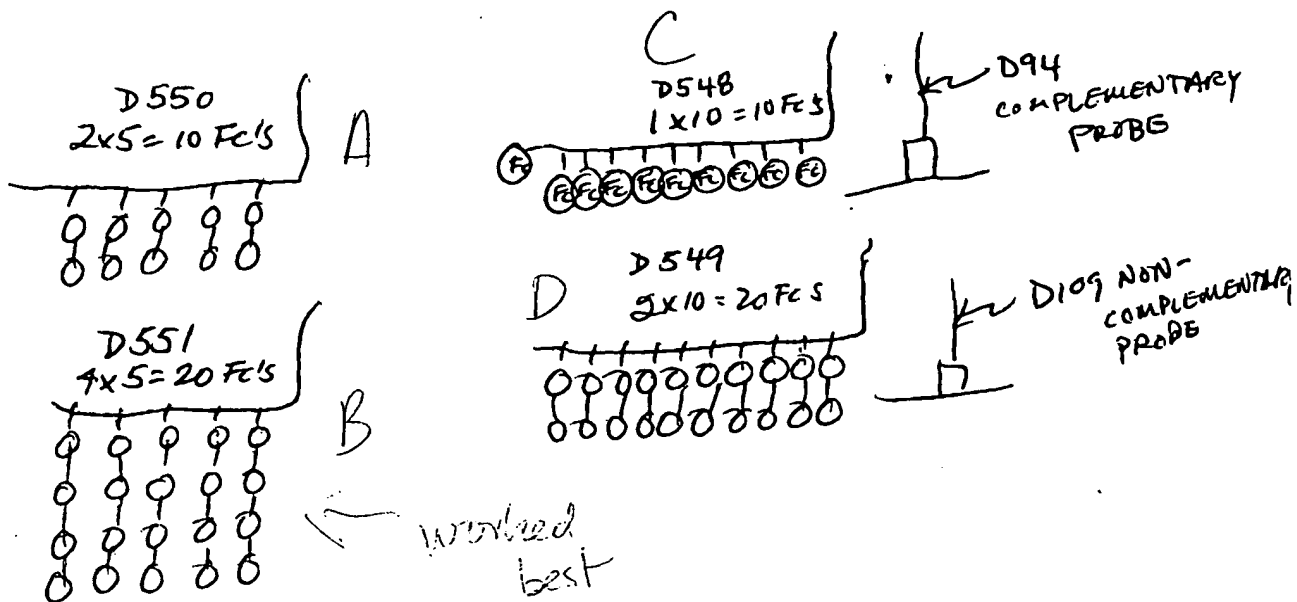
Peaks w/E₀ < 160 mV

| Measur | File | Electrode | Hybrid Code | 2/π * I _p (nA) | | | E ₀ (mV) | 2/π * I _p (nA) | E ₀ (mV) |
|--------|------|-----------|-------------|---------------------------|---------|---------|---------------------|---------------------------|---------------------|
| | | | | Raw Data | Average | STDEV | | | |
| JZ | 2 | 46 | 5- | 1.041 | 1.93 | 1.25 | 170 | 4.465 | 60 |
| A | 3 | 47 | | 2.811 | | | 170 | | |
| A | 1 | 41 | 5+ | 5.7 | | | 170 | | |
| JZ | 1 | 43 | | 1.862 | 3.39 | 2.03 | 170 | | |
| A | 2 | 44 | | 2.613 | | | 180 | 0.96 | 60 |
| A | 5 | 53 | 6- | 0.6566 | | | 170 | 2.1 | 60 |
| JZ | 5 | 55 | | 0.8548 | 2.23 | 2.55 | 170 | | |
| A | 6 | 56 | | 5.167 | | | 180 | 1.64 | 60 |
| JZ | 3 | 49 | 6+ | 5.799 | | | 170 | | |
| A | 4 | 50 | | 8.468 | 5.82 | 2.64 | 180 | | |
| JZ | 4 | 52 | | 3.187 | | | 160 | | |
| JZ | 7 | 61 | 7- | 0.1988 | | | 160 | 1.147 | 60 |
| A | 8 | 62 | | 1.382 | 0.73 | 0.60 | 170 | 1.04 | 50 |
| JZ | 8 | 64 | | 0.6104 | | | 160 | 0.1958 | 60 |
| JZ | 6 | 58 | 7+ | 1.459 | | | 160 | | |
| A | 7 | 59 | | 1.042 | 1.25 | 0.29 | 160 | 2.38 | 60 |
| JZ | 10 | 70 | 8- | 0.3208 | | | 160 | 0.504 | 60 |
| A | 11 | 71 | | 0.7994 | 0.56 | 0.34 | 190 | 2.22 | 60 |
| A | 9 | 65 | 8+ | 3.297 | | | 170 | | |
| JZ | 9 | 67 | | 1.492 | 2.54 | 0.94 | 160 | | |
| A | 10 | 68 | | 2.841 | | | 170 | 0.71 | 60 |
| JZ | 12 | 76 | 9- | 1.215 | 1.22 | #DIV/0! | 170 | 4.414 | 50 |
| JZ | 11 | 73 | 9+ | 3.768 | | | 170 | 0.7741 | 50 |
| A | 12 | 74 | | 5.592 | 4.68 | 1.29 | 170 | 0.53 | 60 |
| JZ | 14 | 78 | 10- | 2.842 | | | 170 | 2.319 | 50 |
| A | 14 | 80 | | 7.4 | 5.12 | 3.22 | 170 | | |
| A | 13 | 77 | 10+ | 5.582 | | | 170 | | |
| JZ | 13 | 79 | | 4.337 | 4.96 | 0.88 | 160 | 3.173 | 50 |

FS
23B

09435433.001700

002700" C00T5000



□ = N38
○ = C23
• = H2

E

Fig 24

Fig 24 cont

F

Bristle-Attached Fc's

$\nu = 10 \text{ Hz}$, $\varepsilon = 25 \text{ mV}$

| measurer | expt | file | electrode | surface | hybrid | $2/\pi \cdot i_p \text{ (nA)}$ | $E_0 \text{ (mV)}$ | average
$2/\pi \cdot i_p \text{ (nA)}$ | STDEV
$2/\pi \cdot i_p \text{ (nA)}$ |
|----------|------|------|-----------|--|------------------|--------------------------------|--------------------|---|---|
| A | 409 | 1 | 1 | <u>"+" surface</u>
2:2:1
D94/H6/M44*,
total thiol =
833 μM | D548
(1x10)** | 22.6 | 150 | 14.5 | 5.8 |
| A | 409 | 17 | 17 | | | 9.622 | 200 | | |
| Z | 73 | 8 | 8 | | | 14.51 | 100 | | |
| Z | 73 | 22 | 24 | | | 11.15 | 110 | | |
| A | 409 | 8 | 7 | | D549
(2x10) | 53.52 | 200 | 60.6 | 12.9 |
| A | 409 | 22 | 23 | | | 71.13 | 220 | | |
| Z | 73 | 1 | 2 | | | 71.66 | 110 | | |
| Z | 73 | 17 | 18 | | | 45.9 | 120 | | |
| A | 409 | 4 | 3 | | D550
(2x5) | 72.4 | 190 | 45.5 | 18.9 |
| A | 409 | 18 | 19 | | | 30.67 | 210 | | |
| Z | 73 | 7 | 6 | | | 44.49 | 120 | | |
| Z | 73 | 19 | 22 | | | 34.43 | 120 | | |
| A | 409 | 7 | 5 | | D551
(4x5) | 105.8 | 210 | 74.9 | 23.5 |
| A | 409 | 19 | 21 | | | 48.66 | 230 | | |
| Z | 73 | 4 | 4 | | | 70.42 | 130 | | |
| Z | 73 | 18 | 20 | | | 74.77 | 130 | | |
| A | 409 | 9 | 9 | <u>"-" surface</u>
2:2:1
D109/H6/M44*,
total thiol =
833 μM | D548
(1x10) | 5.665 | 200 | 1.6 | 2.7 |
| A | 409 | 25 | 25 | | | 0.6443 | 250 | | |
| Z | 73 | 16 | 16 | | | 0.0864 | 120 | | |
| Z | 73 | 30 | 32 | | | 0 | - | | |
| A | 409 | 16 | 15 | | D549
(2x10) | 10.24 | 230 | 8.3 | 5.9 |
| A | 409 | 30 | 31 | | | 14.57 | 260 | | |
| Z | 73 | 9 | 10 | | | 7.881 | 130 | | |
| Z | 73 | 25 | 26 | | | 0.5476 | 140 | | |
| A | 409 | 12 | 11 | | D550
(2x5) | 4.513 | 230 | 3.7 | 1.6 |
| A | 409 | 26 | 27 | | | 4.264 | 260 | | |
| Z | 73 | 15 | 14 | | | 4.553 | 150 | | |
| Z | 73 | 27 | 30 | | | 1.314 | 140 | | |
| A | 409 | 15 | 13 | | D551
(4x5) | 10.31 | 240 | 9.0 | 6.9 |
| A | 409 | 27 | 29 | | | 17.46 | 280 | | |
| Z | 73 | 12 | 12 | | | 7.445 | 160 | | |
| Z | 73 | 26 | 28 | | | 0.8812 | 90 | | |

* Note: M44 = M43. ** Also note: (n x m) means there are m bristles, each with n Fc's.

662780" C035150

RTV OF
S, Inc.

[illegible]

| measurer | expt | file | electrode | surface | hybrid | $2/\pi \cdot I_p$ (nA) | E_0 (mV) | averag
$2/\pi \cdot I_p$ (nA) | STDEV
$2/\pi \cdot I_p$ (nA) |
|----------|------|------|-----------|----------------------|------------|------------------------|------------|----------------------------------|---------------------------------|
| A | 52 | 1 | 1 | "+" surface | 10 uM D405 | 4.81 | 170 | 18.04 | 14.53 |
| A | 52 | 4 | 3 | 2:2:1 D94/H6/M44* | in 6x SSC | 20.63 | 180 | | |
| Z | 384 | 1 | 2 | total thiol = 833 uM | w/50% FCS | 37.42 | 170 | | |
| Z | 384 | 4 | 4 | | | 9.31 | 160 | | |
| A | 52 | 7 | 5 | "-" surface | 10 uM D405 | 0.1 | 160 | 3.12 | 4.70 |
| A | 52 | 10 | 7 | 2:2:1 D109/H6/M44* | in 6x SSC | 9.97 | 160 | | |
| Z | 384 | 5 | 6 | total thiol = 833 uM | w/50% FCS | 0 | -- | | |
| Z | 384 | 8 | 8 | | | 2.425 | 180 | | |

* Note: M44 = M43.

B

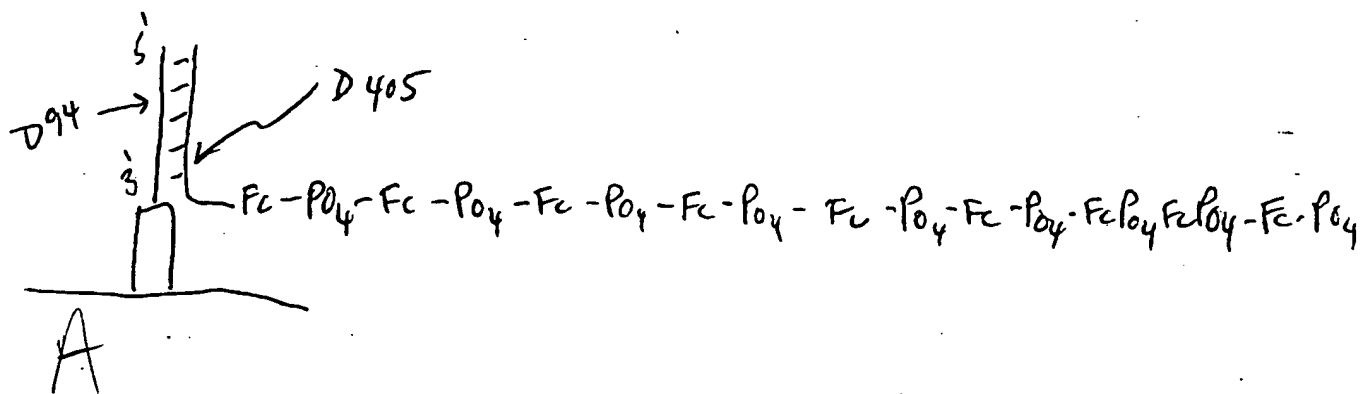


Fig 25

Р4 exp2

active

LP280

↓
 1. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1

5' $\text{c c t g t c t g t a g t c t c a t t a g}$ 3'
 3' $\text{g c c a g a c a t c a g a g t a a t c}$ 5'

29A

[illegible]
$$\ast \equiv n_6 F_c$$

2613

1771 1772 1773 1774 1775 1776 1777 1778 1779 1780 1781 1782 1783 1784 1785 1786 1787 1788 1789 1790 1791 1792 1793 1794 1795 1796 1797 1798 1799 1800 1801 1802 1803 1804 1805 1806 1807 1808 1809 1810 1811 1812 1813 1814 1815 1816 1817 1818 1819 1820 1821 1822 1823 1824 1825 1826 1827 1828 1829 1830 1831 1832 1833 1834 1835 1836 1837 1838 1839 1840 1841 1842 1843 1844 1845 1846 1847 1848 1849 1850 1851 1852 1853 1854 1855 1856 1857 1858 1859 1860 1861 1862 1863 1864 1865 1866 1867 1868 1869 1870 1871 1872 1873 1874 1875 1876 1877 1878 1879 1880 1881 1882 1883 1884 1885 1886 1887 1888 1889 1890 1891 1892 1893 1894 1895 1896 1897 1898 1899 1900 1901 1902 1903 1904 1905 1906 1907 1908 1909 1910 1911 1912 1913 1914 1915 1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939 1940 1941 1942 1943 1944 1945 1946 1947 1948 1949 1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974 1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030 2031 2032 2033 2034 2035 2036 2037 2038 2039 2040 2041 2042 2043 2044 2045 2046 2047 2048 2049 2050 2051 2052 2053 2054 2055 2056 2057 2058 2059 2060 2061 2062 2063 2064 2065 2066 2067 2068 2069 2070 2071 2072 2073 2074 2075 2076 2077 2078 2079 2080 2081 2082 2083 2084 2085 2086 2087 2088 2089 2090 2091 2092 2093 2094 2095 2096 2097 2098 2099 2100 2101 2102 2103 2104 2105 2106 2107 2108 2109 2110 2111 2112 2113 2114 2115 2116 2117 2118 2119 2120 2121 2122 2123 2124 2125 2126 2127 2128 2129 2130 2131 2132 2133 2134 2135 2136 2137 2138 2139 2140 2141 2142 2143 2144 2145 2146 2147 2148 2149 2150 2151 2152 2153 2154 2155 2156 2157 2158 2159 2160 2161 2162 2163 2164 2165 2166 2167 2168 2169 2170 2171 2172 2173 2174 2175 2176 2177 2178 2179 2180 2181 2182 2183 2184 2185 2186 2187 2188 2189 2190 2191 2192 2193 2194 2195 2196 2197 2198 2199 2200 2201 2202 2203 2204 2205 2206 2207 2208 2209 2210 2211 2212 2213 2214 2215 2216 2217 2218 2219 2220 2221 2222 2223 2224 2225 2226 2227 2228 2229 2230 2231 2232 2233 2234 2235 2236 2237 2238 2239 2240 2241 2242 2243 2244 2245 2246 2247 2248 2249 2250 2251 2252 2253 2254 2255 2256 2257 2258 2259 2260 2261 2262 2263 2264 2265 2266 2267 2268 2269 2270 2271 2272 2273 2274 2275 2276 2277 2278 2279 2280 2281 2282 2283 2284 2285 2286 2287 2288 2289 2290 2291 2292 2293 2294 2295 2296 2297 2298 2299 2300 2301 2302 2303 2304 2305 2306 2307 2308 2309 2310 2311 2312 2313 2314 2315 2316 2317 2318 2319 2320 2321 2322 2323 2324 2325 2326 2327 2328 2329 2330 2331 2332 2333 2334 2335 2336 2337 2338 2339 2340 2341 2342 2343 2344 2345 2346 2347 2348 2349 2350 2351 2352 2353 2354 2355 2356 2357 2358 2359 2360 2361 2362 2363 2364 2365 2366 2367 2368 2369 2370 2371 2372 2373 2374 2375 2376 2377 2378 2379 2380 2381 2382 2383 2384 2385 2386 2387 2388 2389 2390 2391 2392 2393 2394 2395 2396 2397 2398 2399 2400 2401 2402 2403 2404 2405 2406 2407 2408 2409 2410 2411 2412 2413 2414 2415 2416 2417 2418 2419 2420 2421 2422 2423 2424 2425 2426 2427 2428 2429 2430 2431 2432 2433 2434 2435 2436 2437 2438 2439 2440 2441 2442 2443 2444 2445 2446 2447 2448 2449 2450 2451 2452 2453 2454 2455 2456 2457 2458 2459 2460 2461 2462 2463 2464 2465 2466 2467 2468 2469 2470 2471 2472 2473 2474 2475 2476 2477 2478 2479 2480 2481 2482 2483 2484 2485 2486 2487 2488 2489 2490 2491 2492 2493 2494 2495 2496 2497 2498 2499 2500 2501 2502 2503 2504 2505 2506 2507 2508 2509 2510 2511 2512 2513 2514 2515 2516 2517 2518 2519 2520 2521 2522 2523 2524 2525 2526 2527 2528 2529 2530 2531 2532 2533 2534 2535 2536 2537 2538 2539 2540 2541 2542 2543 2544 2545 2546 2547 2548 2549 2550 2551 2552 2553 2554 2555 2556 2557 2558 2559 2560 2561 2562 2563 2564 2565 2566 2567 2568 2569 2570 2571 2572 2573 2574 2575 2576 2577 2578 2579 2580 2581 2582 2583 2584 2585 2586 2587 2588 2

PCR Amplification Monitored by Electronic Sensing for Differing Initial Numbers of Template

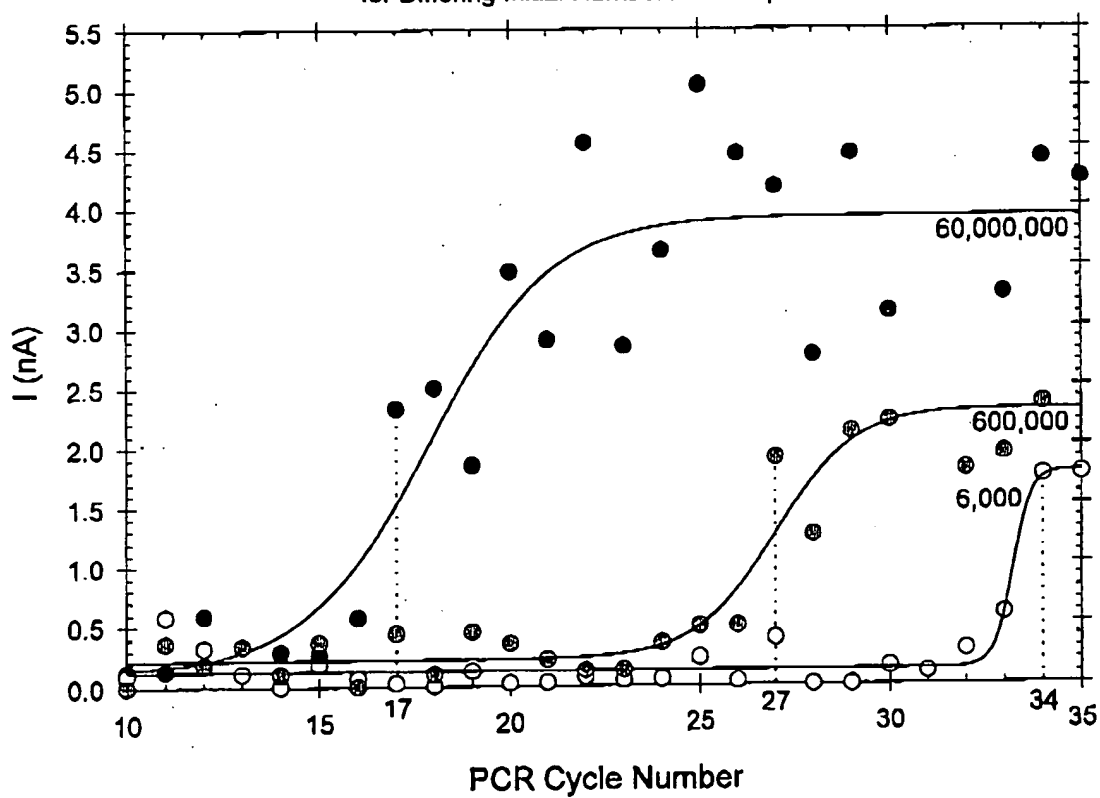


Fig 27